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32d Congress, 2d Session. } SENATE. { Executive, No. 59.

REPORT OF AN EXPEDITION

DOWN THE

ZUNI AND COLORADO RIVERS,

BY

CAPTAIN L. SITGREAVES,
CORPS TOPOGRAPHICAL ENGINEERS.

ACCOMPANIED BY MAPS, SKETCHES, VIEWS, AND ILLUSTRATIONS.

WASHINGTON:
ROBERT ARMSTRONG, PUBLIC PRINTER.
1853.

REPORT

OF

THE SECRETARY OF WAR,

COMMUNICATING,

In compliance with a resolution of the Senate, the Report of an Expedition down the Zuñi and Colorado rivers, by Captain Sitgreaves.

FEBRUARY 15, 1853.—Referred to the Committee on Military Affairs.
MARCH 3, 1853.—Ordered to be printed; and that 2,000 extra copies be printed, 200 of which for Captain Sitgreaves.

WAR DEPARTMENT,
Washington, Feb. 12, 1853.

SIR: In compliance with the Senate resolution of the 28th July last, I have the honor to transmit herewith the Report "of the Expedition down the Zuñi and the Colorado, under the command of Captain Sitgreaves, of the Corps of Topographical Engineers, and of the maps belonging thereto; also, the sketches and views and illustrations of Indian customs."

Very respectfully, your obedient servant,

C. M. CONRAD,
Secretary of War.

HON. D. R. ATCHISON,
President of the Senate.

BUREAU OF TOPOGRAPHICAL ENGINEERS,
Washington, Feb. 7, 1853.

SIR: I have the honor to submit the Report of the Expedition down the Zuñi and the Colorado, under Captain Sitgreaves, of the Corps of Topographical Engineers, called for by a resolution of the Senate of July last.

Respectfully, sir, your obedient servant,
J. J. ABERT,
Colonel Corps Top. Engineers.

Hon. C. M. CONRAD,
Secretary of War.

WASHINGTON, *February* 7, 1853.

SIR: I have the honor to submit the accompanying map of the route explored by me from the pueblo of Zuñi, New Mexico, to Camp Yuma, on the Colorado of the West, under instructions from you, of which the following is an extract:

"The river Zuñi is represented on good authority to empty into the Colorado, and it has been partially explored by Lieutenant Simpson to the pueblo of Zuñi. You will therefore go to that place, which will be, in fact, the commencing point of your exploring labors. From the pueblo of Zuñi you will pursue the Zuñi to its junction with the Colorado, determining its course and character, particularly in reference to its navigable properties, and to the character of its adjacent land and productions. The junction of the Zuñi and Colorado will be accurately determined. You will then pursue the Colorado to its junction with the Gulf of California, taking those observations which will enable you accurately to delineate its course."

The party was organized at Santa Fé, and consisted of Lieutenant J. G. Parke, Topographical Engineers; S. W. Woodhouse, M. D., physician and naturalist; Mr. R. H. Kern, draughtsman; Mr. Antoine Leroux, guide; five Americans and ten Mexicans as packers and *arrieros*.

As many mules as could be procured in time, suitable for the purpose, were purchased; but these not being sufficient, the assistant quartermaster at Santa Fé furnished me, on my requisition, with forty additional ones, with pack-saddles, &c. A portion of the provisions for the party were obtained from the assistant commissary of subsistence at the same place.

The commanding officer in New Mexico being about to make an expedition against the Navajos, directed me to await his departure, so as to take advantage of the protection afforded by his command as far as our routes coincided, or until he could detach a proper escort for my party. The troops assembled at Santo Domingo, on the Rio Grande, and took up their march thence on the 1st August. On the 1st September we arrived at the pueblo of Zuñi, the point at which my exploration was to commence.

Colonel Sumner had detailed for the escort Brevet Major H. L. Kendrick, 2d Artillery, with thirty men of his company, but they were not detached until after they had accompanied him to Cañon Bonito, three days' journey farther into the Navajo country. I was thus compelled to wait at Zuñi until the 24th September, consuming in the mean time part of the limited supplies provided for the expedition. The mules likewise suffered from the delay, for there was scarcely any grazing in the immediate vicinity of the pueblo, and I did not deem it prudent to send them to a distance, as small parties of Navajos had been seen lurking in the neighborhood. The mules of Major Kendrick's command were still more unfit to undertake a difficult march, many of them having been taken out of wagons after a journey of several weeks' duration.

I can add very little to the information afforded by the map, almost the entire country traversed being barren, and without general interest. Observations with the sextant were made as often as occasion served; and the latitude and longitude of as many points determined as are necessary to establish the line of march with sufficient accuracy. Collections were made of such objects of natural history as could be transported with our limited facilities. Their description will be found in the reports hereto appended.

The expedition set out from Zuñi the 24th September. The incidents of the journey are detailed in the following extracts from my journal:

September 24, *Camp No.* 1.—Our first day's march was only six miles. It was made thus short to enable us to correct any defects that might be discovered in the arrangement of the packs.

The Zuñi is a mere rivulet, and not entitled to the name of river; in most parts of our country it would not be dignified with that of creek. The corn-fields of the Zuñi Indians extended at intervals for several miles down the stream, their crops and orchards being planted on the edge of the valley, or in the fertile gorges of the mountains. The only cultivation in the immediate vicinity of the pueblo consisted of small vegetable gardens, tended by the women and watered by hand, in which

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were grown chiefly onions, beans, and chile.* Their orchards produce good peaches, with which we were abundantly supplied during our stay at the village.

September 25, *Camp No.* 2.—A well-beaten trail, following the general direction of the stream, enabled us to avoid the inconvenience of travelling over ground rendered soft and miry by the recent rains. We encamped on the banks of the creek, near some abrupt rocks, from beneath which gushes out a fine spring. Fragments of pack-saddles and broken boxes gave evidence of a former encampment of white men, probably of the party of Lieutenant Thom, who escorted Mr. Collier to California in 1849.

September 26, *Camp No.* 3.—The valley is here shut in by abrupt walls of gray sandstone, occasionally mixed with basalt, having frequent springs running out from under them; but farther down it expands to several miles in width, other valleys opening into it. The faces of the sandstone rocks, wherever they presented a smooth surface, were covered with Indian hieroglyphics, or pictures, carved or painted upon them.

The bed of the stream becoming dry, we crossed the point of a precipitous basaltic ridge, and, keeping on the slope of the hills bounding the valley to the north, encamped on a little channel filled with muddy rain-water in the middle of a miry plain. The soil on the hills was sandy, and in the plain, of sand mixed with clay; in both cases yielding to the foot.

September 27, *Camp No.* 4.—Just after leaving camp a small party of Indians came in sight, who proved to be Coyoteros, (Apaches,) driving some asses to Zuñi for the purpose of trade. One among them was evidently a Mexican, captured probably in childhood, for he spoke but few words of Spanish.

The well-marked trail we had hitherto followed brought us at length to the Little Colorado, which it crosses, continuing on south to the Salt River, a tributary of the Gila.

At this point the Little Colorado is an insignificant stream, divided into several small channels, flowing through a narrow valley destitute of timber, but covered with a thick growth of rank unnutritious grass. The hills bounding it on either side are of gradual slope, with here and there a rocky point, of a conglomerate of gray sandstone and pebbles jutting out into the bottom.

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* Since the establishment of the military post at Cañon Bonito, and the consequent pacification of the Navajos, the amount of cultivation has greatly increased. During the past season the Zuñi Indians had some ten thousand acres in corn, and the Moquis a still greater quantity.

September 28, *Camp No.* 5.—Proceeding down the valley, it widens out into a broad plain, which the recent profuse rains had made soft and muddy. To avoid this we turned off from the river, and made our way across the high land, but gained little by the exchange, for the soil was so light and thinly covered with grass that the mules sank to their fetlocks at every step. The ground was strewed with pebbles of agate, jasper, and chalcedony, and masses of what appeared to have been stumps of trees petrified into jasper, beautifully striped with bright shades of red, (the predominating color,) blue, white, and yellow. The rocks were gray sandstone, sometimes of a slaty structure.

September 30, *Camp No.* 7.—The river here runs through a deep and rocky cañon, which we skirted, and crossed below it to the south bank, finding the ground much broken by ravines, which were only visible when we came directly upon them. The surrounding scenery resembled that of the northwestern prairies, the country being bare of trees and the horizon unbroken, except in one direction, where a high conical peak, that had served us several days as a landmark, varied the uniformity of its outline.

October 1, *Camp No.* 8.—The river, winding to the north, gave us a straight course across the high land, soft and sandy, as usual, and frequently intersected by deep ravines, until we again encountered it, flowing now between bluff sandy banks fringed with cotton-wood trees, and presenting at length the appearance of a river, but still with little water in its bed. I remarked cropping out of the side of a bluff a seam of fibrous gypsum three or four inches thick. In the course of the day's march the San Francisco mountains became visible to the west, and to the north several singular volcanic peaks.

October 2, *Camp No.* 9.—The river here receives a tributary known among trappers as Chevelon's Fork, from one of that name who died upon its banks from eating some poisonous root. Their confluence produces an intricate labyrinth of sloughs, in which we became involved, and were forced to encamp, not finding an outlet until late in the day. In several places veins of fibrous gypsum were seen, looking like the ice-crystals that burst open the ground in spring.

October 3, *Camp No.* 10.—Our course was here interrupted by a deep bayou thickly overgrown with rushes, and which, on attempting to turn it, was found to lead to a rocky ravine or cañon utterly impassable. We retraced our steps, therefore, and with much difficulty recrossed the river, which, making a bend to the north, winds through a broad plain resembling the bed of a great lagoon from which the water had just subsided, leaving it slimy and intersected with fissures and channels that often impeded our progress. Here and there only a bush of the wild sage dotted its surface, and the surrounding hills appeared equally destitute of vegetation.

October 5, *Camp No.* 12.—The country on the north bank presenting the same appearance of desolation as far as the eye could discern, we again crossed the river, and, passing on to higher ground, encamped on a bayou near the edge of the valley. The grass upon the hills was invariably better and more abundant than on the river bottom, but the absence of wood and water in such places generally obliged us to make our camps near the river. The mules, particularly those of Major Kendrick's command, already began to show signs of fatigue, and their backs to become galled by the saddles.

The army pack-saddle is of excellent materials and workmanship, but is defective in form. Its shape should approach more nearly to that of the riding-saddle, so as to provide against a change in the condition of the animal. A saddle may answer very well for a horse or mule in good condition, which will injure the back when the animal becomes lean or changes from a grain to an exclusive grass diet. Lieutenant Colonel Johnston informed me that he was in the habit of using with good results the common Texas tree, provided with the necessary rings and straps. A good pack-saddle is still a desideratum in the service.

October 7, *Camp No.* 13.—Many precipitous cañons were passed, enclosing within their walls of yellow sandstone clumps of small cottonwood trees. Ridges of lava and a black dust, the detritus of the lava, overing the ground in many places, indicated our approach to a volcanic region. Near our camp, on the bank of the river, were the ruins of several stone houses, which the guide, Mr. Leroux, said resembled those of the Moqui Indians.

October 8, *Camp No.* 14.—About a mile below the last camp the river falls over a succession of horizontal ledges of sandstone, forming a beautiful cascade of one hundred to one hundred and twenty feet in vertical height, and continues on its course through a cañon of that depth, the general level of the banks remaining the same.

Having been informed by my guide and other experienced trappers that this cañon extends down the river to its junction with the Colorado, and the great cañon through which the latter flows, I regarded the attempt to follow the river to its mouth as too hazardous, considering the condition of the animals and the state of the supplies, and therefore, by the advice of the guide, turned off towards the mountains, with the purpose of striking the Colorado below the great cañon, and then exploring it upward as far as might be found practicable. Leaving the river then, we passed along the base of high table lands, the lava-sand lying several inches deep upon the ground, filling up the hollows, and forming ridges across the plain; and, ascending the plateau, found it also covered with the lava detritus, and all the prominent points occupied by the ruins of stone houses of considerable size, and in some instances of three stories in height. They are evidently the remains of a large town, as they occurred at intervals for an extent of eight or nine miles, and the ground was thickly strewed with fragments of pottery in all directions. The fact that no vestige of water could be discovered in the vicinity sufficiently accounts for their present depopulation. The encroachment of the lava-sand blown down from the adjacent mountains may have gradually filled up the springs and water-courses; it is certain, at any rate, that the heaviest rains would now be rapidly absorbed by it, and after a day or two leave no trace of water upon the surface.

The houses resemble in all respects (except that *adobes* do not appear to have been at all used in their construction) those of the existing pueblos of New Mexico; and the pottery, of a great variety of fabric and pattern, is similar to that now in use among them.

October 9, *Camp No.* 15.—Pursuing our way still farther into the mountains, the ruins became of rarer occurrence, or else were concealed by the cedars with which the hills were covered. A small pool of water was discovered under an overhanging rock, out of which the men as they came up filled their canteens; and, as the water was not thereby sensibly diminished, it was supposed to have its source in some concealed reservoir, and that it would be possible in the course of the day to water all the animals. We should then, moreover, have been able to hold a more direct course, having diverged towards the mountains in the expectation of finding water. The camp was scarcely pitched, however, when it was reported that the spring was rapidly becoming exhausted, and Mr. Leroux was therefore sent, with the mules and half of the men, in search of water, the rest remaining in camp to protect the supplies. He did not return until late in the night, and reported that he had come upon a large encampment of Yampai or Tonto Indians on the edge of a deep ravine, through which ran a stream, which he supposed to be the headwaters of the San Francisco, a tributary of Salt River. The women and children, engaged in gathering *piñones*, (pine-nuts,) fled at his approach; while the men held themselves aloof, and refused to parley with him or meet his friendly advances. He was compelled, therefore, to return as he went, not venturing to drive the mules into the ravine, and thus give the Indians an opportunity of attacking him at disadvantage. I regretted that he had suffered his men to take from the lodges sundry articles of value to the Indians. Among these were some admirably made baskets, of so close a texture as to hold water; a wicker-jar, coated with pine-tree gum; a large quantity of piñones and grass-seed; some bread, made of the mezquit bean; a cake of *mezcal*, (a preparation of the maguey;) and pieces of a substance that had all the appearance of chalk; but as it did not effervesce with acids, was probably an exceedingly pure variety of kaolin.

October 10, *Camp No.* 15.—The mules, having now been two days without water, were, as the last resource, sent back to the river, taking with them some kegs and India-rubber water-bags with which I had fortunately provided myself. They returned in the evening, less three of their number lost by the way, but bringing back an abundant supply of water. In the course of the preceding night, by watching by the spring and dipping up the water by the spoonful as it trickled out, enough had been obtained to furnish each person with a cup of coffee.

October 11, *Camp No.* 16.—As we ascended the mountain the cedar gave place to the nut-bearing pine; and this, when near the summit, to a pine of larger growth with long leaves. Herds of antelope were seen in all directions, but they kept to the open country, and were shy and difficult to approach.

October 12, *Camp No.* 17.—The ascent of the mountain was continued, with the greatest anxiety as to the result of the day's journey; for the mules had drunk but once in more than four days, and the country showed no indications of water in any direction. There was much beauty in some of the glades and mountain glens we passed. The ground was covered with fresh grass and well timbered with tall pines, mingled, after attaining a certain altitude, with aspens of a brilliant yellow.

Crossing the summit we descended gradually to the brow of a precipice overlooking a green vale of five or six miles in extent, but with no appearance of water, and commenced the descent, picking our way with difficulty among the loose rocks, in the belief that there we should be compelled to abandon most of our animals. When half-way down, a shot from one of the Mexicans on the flank inspired us with hope, for it was the signal fixed upon to notify the discovery of water; but still I observed nothing to warrant it; and it was not until we had reached the bottom of the cliff that I discerned a narrow thread of grass and weeds, greener and ranker than the surrounding growth, winding out from a little nook, and losing itself in the plain. It proved to be a spring of delicious water; and thus providentially terminated our fears and anxieties for the time.

October 13, *Camp No.* 17.—It was necessary to halt here for a day or two to rest the mules and have them reshod. The feet of the sheep, too, had become sore and worn out; and at the suggestion of a Mexican, my *mayordomo*, the cracks in them were filled, by means of a hot iron, with resin and pine-tree gum, by which operation the animals appeared much relieved. Mr. Leroux reconnoitred the route ahead, and found water in several places ten or twelve miles distant. He again surprised a few lodges of Indians, who fled, leaving their effects behind them. This time he did not permit his men to pilfer, but, on the contrary, left at the lodges a small present of tobacco, handkerchiefs, and knives, for the purpose of conciliating the Indians, and inducing them to hold some intercourse with us, by which means we hoped to obtain useful information in regard to the route. The only provisions found in the lodges were piñones and the grass-seed before mentioned.

The box chronometer had been carried in a pannier, carefully packed in wool, and placed on the steadiest mule of the *atajo*, which was always led by the halter; but it was nevertheless found to have stopped, from the roughness of the last day's journey. Independent observations were therefore made for the longitude, the pocket chronometer not having sufficient regularity to be depended on.

During the night we were alarmed by a stampede of the mules. Fortunately they ran into a gorge near the camp, from which there was but the one outlet, and we succeeded in quieting them. The cause of their fright was made apparent by the roaring of a panther, or other large animal, in uncomfortable proximity to the herd.

October 15, *Camp No.* 18.—Our route lay across plains of gentle slope. Mingled with the pines were a few small post-oaks; and in a green glade was found some white clover of a different variety from that common in the States. Flowers and birds were more numerous than upon the northern slopes of the mountain, but no fragments of pottery or other signs of habitation were seen. Our camp was upon the dry bed of a lagoon, a mile in extent, having some small pools of water hidden among the tall grass, from which our arrival put up a large flight of water-fowl, crows, and smaller birds. When approaching the mountains I had been struck with a singular incandescent appearance which some of the higher slopes presented when the sun was near the horizon. This I found to be caused by a bright, yellow-colored grass, having the extremities of the blades tipped with red by the action of the frost. It looked fresh, but the animals preferred the shorter kind, which grew upon the ridges and among the pines.

October 16, *Camp No.* 18.—We were detained at this camp by the illness of one of the party, a Mexican, from a blow on the head received some days previously. He died on the 25th, and was buried at the foot of a large pine tree, marked with a cross. The delay afforded our jaded animals the rest they so much needed, but also consumed a portion of the supplies of which we were afterwards in great want. The bacon had lost much in weight from the effect of the hot sun, and the issues at this place nearly exhausted the supply. About twenty sheep, in poor condition, remained, and formed our sole dependence, with the exception of some meat-biscuit, the excellence of which had not then been tested. It is an admirable preparation, and should form a large proportion of the supplies for all similar expeditions. Although antelope and black-tailed deer were abundant, and the fresh tracks of bears were occasionally seen, our hunters, some of them experienced and expert, had not been successful in supplying us with game. The daily variation of the temperature was remarkable, the average range in twenty-four hours being about 55° Fahrenheit, or from 10° to 65°. Near the summit of one of the adjacent hills were the traces of old excavations, made apparently in search of the precious metals, but the surrounding formation gave no indications of their existence. Similar remains were observed near Camp No. 16.

October 21, *Camp No.* 19.—Occasional patches of white clover were again met with, and the singular cedar first seen when crossing the Zuñi mountains. The trunk is large and low, with wide-spreading branches, and the bark, several inches thick, is corrugated like that of the oak. The camp overlooked a wild and picturesque cañon. Tall pines, oaks, and the low, spreading cedar were mingled so as to produce a park-like effect, heightened by glimpses through the vistas of the sheep and mules grazing on the rich grama grass that grew up among and concealed the sharp, black fragments of trap that covered the ground.

A Mexican who left camp on the 19th to hunt for game, had not returned when we set out; and as our frequent search for him had been unsuccessful, it was feared that he had fallen into the hands of the Yampais. At sunset, however, on driving the animals to water in the cañon, he was discovered sitting on a rock, picking a rib of venison. He had lost himself and become bewildered, wandering about for three days without water or food; for, although he had killed a deer, he had not ventured to eat for fear of rendering his thirst insupportable, until he found himself at the spring near Camp 17, from which place he had been guided by the trail of the party until he overtook us.

October 23, *Camp No.* 21.—Keeping along the side of the mountain in the hope of meeting with water, we got into a succession of deep and steep ravines; but, finding them dry, bore more to the south, and descended into the bed of a small stream, called by trappers Bill Williams's Fork, in which were a few pools containing sufficient water for the supply of the party. As we descended the pines became of smaller growth, with here and there cedars, scrub-oaks, locusts, and the *Fallugia paradoxa*, described in Major Emory's report.

October 24, *Camp No.* 22.—Leaving behind us the mountains and the stream, whose course was too much to the southward, we struck out west across the plain. The ground was much broken by precipitous ravines, in one of which were seen masses of porphyry and quartz, the only exceptions to the usual trap we had met since reaching the mountains.

October 25, *Camp No.* 23.—In the course of the day we passed a few groves of the common cedar, the only tree to be seen. The grass, of good quality, was parched with the continued drought, and the soil, loose and dry as ashes, gave little hope of finding water.

October 26, *Camp No.* 24.—At daylight it was discovered that a dozen mules were missing. Their tracks showed that they had gone back upon our trail, and some men were despatched to recover them; while the rest of the party pursued their journey across a rocky ridge thickly overgrown with cedars, whose low branches, frequently sweeping off a pack, rendered the march slow and laborious. When we stopped to rest in the middle of the day the animals, overcome with thirst and fatigue, refused to graze, and huddled together under the shade of the trees. Before resuming the march, a gourd of water and some bread were left for the men who had been sent back in search of the missing mules; and, after a march of seven miles farther, we encamped the third night without water.

October 27, *Camp No.* 25.—A few hours after setting out, fresh signs of Indians began to make their appearance, and increased as we advanced, in frequency and numbers, until we came upon a well-marked and newly-made trail, leading to the northward of our course, but into which we turned in the hope of its leading us to water. Having pursued it in silence a few miles, we surprised a party of ten or twelve of the most wretched looking Indians I have ever seen, naked, and apparently almost starved. They all fled, except an old man and a woman, whom we attempted to conciliate with some presents; but were not successful in allaying their fears, although the man finally undertook to direct us to water. The mules were therefore unpacked and sent off under his guidance. He conducted them to two small springs in a rocky gorge, some ten miles distant; but, in their eagerness to drink, the ground was soon trampled into a mere mass of mud, so that very few were enabled to quench their thirst. The Indian watched his opportunity, when not observed, to slip from his mule and escape among the rocks; but as he had performed the only service we required of him, no attempt was made to retake him.

October 28, *Camp No.* 26.—As there was no other alternative, the camp was removed to the vicinity of the springs and the men set to work at clearing them out. By this means, and leading two or three at a time to water, in the course of this and the following day a small quantity was obtained for each animal, barely enough to keep them alive, but not enough to allay their thirst, as their refusal to eat and plaintive cries too clearly proved.

The continued absence of the men who had been sent back on the 26th upon the tracks of the missing mules created great fears for their safety, or lest they had returned to Zuñi; and their arrival there, it was apprehended, would give rise to unfavorable rumors in regard to the party. Our anxiety was relieved, however, by their reappearance in camp. They had succeeded in finding the mules and bringing them within a day's march of camp, when half the number had again made their escape. During their absence of four days the men had suffered much from hunger and thirst, having taken but one day's rations with them, and being without water, except a small gourd full that one of them had been provident enough to conceal before setting out. The bread and water we had left for them, though placed conspicuously in the middle of our trail, had not been discovered by them, and was probably carried off by the Indians.

A party sent out to reconnoitre brought back the gratifying intelligence that twelve miles in advance was a small stream of running water and an abundance of tolerable grass. A band of Yampais were found encamped upon it, from whom Mr. Leroux learned that the numerous trails we had observed for the last two or three days united and led to the country of the Mohaves, and that their camp was but one day's journey from the river.

October 30, *Camp No.* 27.—This rivulet, which I have called the Yampai, has its source in three small springs; it is repeatedly lost in the ground within a distance of half a mile; after which it disappears entirely. A few willow and cotton-wood trees grow upon its banks, and green grass was here seen for the first time since leaving the San Francisco mountains. Here, too, we enjoyed the luxury of a bath and clean clothes—a luxury not fully appreciable by those who have not gone a week without water to wash even their faces and hands.

November 1, *Camp No.* 28.—In the morning one of the sentinels discovered an Indian lurking about the mules, and brought him into camp. He called himself a "*Cojnino*," was well clothed in shirt, leggins, and moccasins of buckskin, and his hair bound up behind into a queue, after the manner of the Pueblo Indians. A long hair-rope wound around his waist gave unmistakable evidence of his designs upon our mules. After a short time several others made their appearance upon a neighboring hill, and were induced by signs to approach the camp; but, when within two hundred yards, the first one sprang up and darted from the midst of a dozen men who were standing around him, wielding an arrow drawn from his quiver to prevent their approach, and calling out loudly to his companions, who immediately turned and fled, discharging their arrows into the herd and killing three of the mules. The men were then ordered to fire upon them, which they did without any apparent effect, although traces of blood upon the rocks showed afterwards that one at least had been wounded.

November 2, *Camp No.* 29.—We kept down the valley of the Yampai some twelve miles, when, finding that its course was out of our most direct route, we diverged from it across a wide barren plain, and encamped without water, grass, or wood, the only fuel being the withered cacti with which the plain abounded.

A naked escarpment on the side of the creek showed a stratum of granite, containing a great deal of feldspar, underlying the trap, and a whitish feldspathic rock enclosing nodules of chalcedony. The rest of the country only exhibited the usual volcanic formation.

November 3, *Camp No.* 30.—Directly in our front was a bold range of mountains, from the top of which we were sanguine of seeing the

Colorado. We entered a rugged and difficult pass, between cliffs and pinnacles of gneiss, and attained the summit after a long and fatiguing ascent and the loss of several mules that gave out by the way, to be again disappointed in beholding, instead of the river, another extensive and desolate plain, and beyond it a similar formidable looking mountain range.

While halting to rest the mules and endeavor to bring up those that were left on the road, Mr. Leroux turned off to ascend a higher peak, affording a more extended view of the country ahead; and, passing by a cluster of rocks, received the discharge of a flight of arrows from a concealed party of Indians. Three of the arrows took effect, inflicting severe wounds in the head and wrist, which caused him much suffering and disabled him for the rest of the journey. The Indians were driven from rock to rock, but always contrived to keep out of rifle range; and, after the pursuit was abandoned as fruitless, they returned as near as their safety would permit, watching our movements and making gestures of rage and defiance. When the march was resumed they followed for a short distance, approaching near enough to discharge some arrows, without effect, at the rear of the party. They were similarly clad and appeared to be of the same tribe as those last seen; some of the men, indeed, thought they recognised the one who had been in our camp two days before.

November 4, *Camp No.* 31.—Many trees of the Spanish bayonet, scattered over the plain, varied the scene somewhat, but gave no relief to its aspect of barrenness; and another night passed without grass or water, added to the sufferings of the nearly exhausted animals.

November 5, *Camp No.* 32.—The approach to the mountains, before alluded to, was by a gradual ascent, so that when we arrived at their base, there did not remain much to be overcome. The pass was nevertheless exceedingly rough, and bordered by overhanging crags, which it was deemed prudent to occupy before advancing with the *atajo.* We passed through, however, unmolested, and were at length cheered by the view of the Colorado, winding far below through a broad valley, its course for many miles being apparent from the large trees upon its banks. The smoke of numerous fires in the valley gave evidence of a large Indian population, and the sight brought a spontaneous cheer from the men, who believed that this was to be the end of their privations and of the labors and anxieties of the journey.

The barometer showed us to be about 3,200 feet above the river. The descent to it was rapid and continuous, the slope of the mountain reaching almost to its banks.

A small travelling party of miserable looking Indians was met ascending the mountain; one of whom being too much frightened, or too heavily laden to escape, was interrogated by signs; but no information could be obtained from his real or affected stupidity.

At this point the river was two hundred and sixty-six yards wide, with six feet of water in the deepest part; the banks bluff and sandy, about twelve feet high, and the current rapid; but a dense growth of willows and weeds prevented me from measuring its velocity with any degree of accuracy. The presence of water seemed to afford the only relief from our former privations; for the soil, an almost impalpable sand, bore nothing but dry weeds and bushes, and the whole scene presented the most perfect picture of desolation I have ever beheld, as if some sirocco had passed over the land, withering and scorching every thing to crispness.

From this point I had designed to explore the river upward to the great cañon, and determine accurately the mouth of the Rio Virgen, one of its largest tributaries; but the exhausted condition of the animals and scanty supply of provisions (the party having been already several days on reduced rations) compelled me reluctantly to forego my purpose.

The whole country traversed from the San Francisco mountains was barren and devoid of interest. It consists of a succession of mountain ranges and desert plains, the latter having an average height of about 5,000 feet above the level of the ocean. The larger growth, almost exclusively of cedar, was confined to the mountains; and the scanty vegetation of the plains, parched by a long drought, furnished few specimens for the botanist.

November 7, *Camp No.* 33.—A well-worn trail leads down the river, by the side of which in several places were found traced on the ground Indian hieroglyphics, which Mr. Leroux and a Mexican of the party, who had passed many years among the Comanches, interpreted into warnings to us to turn back, and threats against our penetrating farther into the country. We had not gone far before Indians were seen in front in considerable numbers, who appeared to be assembling to dispute our advance. By the exchange of friendly signs, three of them, mounted on fine horses, were induced to approach, whom a few presents sufficed to convince of our peaceful intentions; and they joined the party, and accompanied its march. As we proceeded their number received accessions at every step, until it amounted to some two hundred men, women, and children, who followed on foot, running by the side of the mules, and talking and laughing with every appearance of friendship. In the evening the camp was crowded with them, bringing in for barter small quantities of pumpkins, beans, corn, and, in one or two instances, of wheat, which seem to be the staples of their food, for no animals, except a few horses, were seen among them; and the few sheep we had left were the objects of great admiration, especially to the women.

The appearance of the Mohaves is striking, from their unusual stature, the men averaging at least six feet in height; and their stalwart and athletic figures offered a convincing proof of the excellence of a vegetable diet. Almost all the men were naked, with the exception of the breech-cloth. The hair, cut square across the brows in front, hung in loose braids behind, reaching frequently as low as the waist; occasionally it was matted on the top of the head into a compact mass with mud, for the purpose of destroying the vermin that infest them. The only garment worn by the women was a long fringe of strips of willow-bark wound around the waist, and falling as low as the knees. No covering to the feet was worn by either sex. Their arms are the bow and arrow, the spear and the club. The arrow is formed of two pieces— that to which the barb is attached, of hard wood, seven inches long, or one-fourth the entire length; and the other of a light reed that grows profusely along the banks of the river, feathered, as usual, at the extremity. The custom still prevails among them of carrying a firebrand in the hand in cold weather, which is mentioned in the account of Coronado's expedition in 1540, and induced those discoverers to give to the river the name of Rio del Tizon. Their lodges are rectangular, formed of upright posts imbedded in the ground, and rudely thatched on the top and three sides; a portion of the interior altitude being sometimes obtained by excavation. I saw none of so great a size as those described in the account just referred to.

November 8, *Camp No.* 34.—A large crowd of men, women, and children continued to follow us, many of them carrying beans and pumpkins, and all urgent for us to encamp among them, for the purpose, as they gave us to understand, of trading. I was myself anxious to obtain supplies from them; but their numbers and importunity had been so troublesome the day before, that it was resolved to exclude them from the camp, and to adopt some plan which should free us from a repetition of the annoyance. Before unpacking the mules, therefore, a chain of sentinels was placed around them, with instructions to pre vent the entrance of the Indians, and places were designated on the outside where they might hold their market. This arrangement gave great dissatisfaction, and did not fully answer the purpose intended; for many eluded the vigilance of the sentinels, or took advantage of their negligence, and the camp was soon again filled with them. A large number were observed to have arms; and the fact that no chiefs had presented themselves, notwithstanding our frequent demands for them, was regarded as suspicious, and calling for all possible vigilance. The retreat was therefore sounded, and the Indians ejected from camp, which was accomplished with difficulty, and hardly without the use of violence. They left us with scowling faces, and some old women were vociferous with what we supposed to be their threats and denunciations.

November 9, *Camp No.* 35.—While preparing for our departure before daylight, Dr. Woodhouse, who was warming himself by the fire, received an arrow through the leg, fortunately without doing him much injury. Several others were thrown into the camp and among the mules, but the darkness caused them to fall harmless. The sentinels, however, were thrown farther out, and we got under way without further annoyance, numbers following us with yells of defiance, but taking care to keep at a respectful distance.

Some days after (on the 16th) we came upon another large settlement of Indians, who represented themselves to be Yumas, and met us with assurances of friendship. One of them, who spoke Spanish tolerably well, informed us that we were about eight days' journey from the Gila, and that there was a military post near its mouth, and described accurately the persons of the officers whom we knew to have been stationed there. They were without provisions, living upon the fruit of the mezquit and tornilla trees, and seemed to have recently located themselves upon the spot. I was convinced of the sincerity of their professions, and distributed some presents among their old men; but we did not relax our customary vigilance, excluding them from the camp, and keeping a few men constantly under arms. The utility of the precaution was soon made apparent; for about the middle of the following day, as the advance of the party were engaged in unpacking the mules to give them their accustomed noon rest, a band of fifty or sixty Indians, approaching under cover of a thicket, fell upon a soldier of the escort who had lagged in the rear, and, having disabled him with an arrow wound in the elbow, despatched him with their clubs; following it up by a general attack upon the party, in which they displayed much boldness, advancing within easy arrow range, and maintaining their ground against the fire of our rifles and musketoons for some fifteen minutes, when they were beaten off with loss, leaving four dead upon the ground, and carrying off several wounded. They possessed themselves of the musketoon of the soldier they had killed, but showed themselves unskilled in its use, firing it off several times at a distance of half a mile.

Our progress down the river, though heralded by signal fires as we advanced, was continued without further molestation. Numbers of the mules gave out daily for the want of food, until we were driven to the necessity of destroying all the spare saddles, blankets, tents, ammunition, books, and whatever was not absolutely essential to our safety. Our provisions, too, became exhausted; and the mules, the poorest of which were daily killed for the purpose, supplied our only food until the 30th November, when we arrived with a small remnant of them at Camp Yuma, near the mouth of the Gila, where rations were obtained for the subsistence of the party to San Diego, California.

Below the point at which we reached the Colorado, irregular lines of rugged mountains enclose its valley, now receding to a distance of some twenty miles, now advancing towards each other; and at three places abutting against the river, hem it in between rocky promontories, leaving no room for a roadway at their base. The passage of these defiles were the most difficult portions of the journey, requiring long detours over naked cliffs of extreme acclivity; to cross which we were sometimes obliged to break stepping places in the rock for the mules, and to assist them in their ascent by means of ropes, and where a misstep, or the jostling of a pack against an impending crag, would occasionally precipitate one of them to the bottom of the adjacent precipice. The arable land bordering upon the river is greatly encroached upon by extensive flat spurs, hard, gravelly, and destitute of vegetation, which reach far out into the valley, leaving a comparatively small proportion of the space between the mountains susceptible of cultivation. Some large cotton-wood trees grow directly upon the river banks, but the growth of the rest of the valley is small, consisting chiefly of mezquit, tornilla, willow, and a singular tree with a smooth, pale-green bark, and leaves so diminutive as to require a close proximity to discern them. The shrubs are the arrow-wood, wild sage, *hediondilla*, or creosote plant, and grease weed, so called from the brilliancy of its flame while burning. Cacti are not numerous; the most remarkable is the *pitahaya*, or *Cereus giganteus*.

Only two kinds of grass were found, at rare intervals and in small quantities; a tall, coarse variety, growing in large tufts, and a smaller kind, having a perceptible incrustation of salt upon the leaves.

The trap in some places along the river showed traces of carbonate of copper; and beneath the trap was seen a coarse, gray granite, and in one instance a stratum of clay slate.

Near Camp 51 a large rock occupies the middle of the channel, and ledges extend from it across to both banks. In many other places the river is obstructed by shifting sand bars, rendering its navigation difficult, if not impossible, except during a high stage of the water. The water-stains upon the rocks marked a height of twelve feet above the actual level, but the indications of overflow were partial, except near the mouth of the Gila, where a large surface appears to be subject to inundation.

Very respectfully, your obedient servant,
L. SITGREAVES,
Brevet Captain Top. Engineers.

Col. J. J. Abert,
Corps Top. Engineers.

TABLES

OF

DISTANCES, GEOGRAPHICAL POSITIONS,

AND

METEOROLOGICAL OBSERVATIONS.

TABLE OF DISTANCES.

	Miles.	Miles.
From pueblo of Zuñi to mouth of Zuñi river	58.50	
From mouth of Zuñi river to mouth of Bouché's Fork	25.12	83.62
From Bouché's Fork to mouth of Chevelon's Fork	34.69	118.31
From Chevelon's Fork to mouth of Big Dry Fork	8.00	126.31
From Big Dry Fork to Falls of Little Colorado	43.11	169.42
From Falls of Little Colorado to head of Williams's Fork	89.64	259.06
From Williams's Fork to Yampai creek	89.87	348.93
From Yampai creek to first camp on Colorado	65.57	414.50
From first camp on Colorado to mouth of Williams's Fork	75.19	489.69
From Williams's Fork to camp Yuma	168.00	657.69

TABLE OF GEOGRAPHICAL POSITIONS.

	Latitude.	Longitude west of Greenwich.
	° ′ ″	° ′ ″
Pueblo of Zuñi	35 04 10.7	
Camp No. 5	34 37 33	
Camp No. 7	34 45 27.7	
Camp No. 12	35 15 48	
Camp No. 17	35 16 03	111 29 30
Camp No. 18	35 08 34.3	111 34 03
Camp No. 28	35 26 00.2	
Camp No. 32	35 08 55.4	114 39 27
Camp No. 37	34 34 31	
Camp No. 39	34 20 59.8	
Camp No. 45	33 42 09	
Camp No. 47	33 25 27	
Mouth of Gila river	32 43 31.6	114 33 04

The position of the mouth of the Gila river is from the observations of Lieut. A. W. Whipple, Topographical Engineers.

METEOROLOGICAL OBSERVATIONS.

Number of camp.	Date.		Hour.	Aneroid.	Therm., Fah.	Approximate altitude.	Wind.	Clouds, &c.
Zuñi	Sept.	14	8 a. m.	23.9	68		N. 1	Few cum. and strat. to E.
Do		14	2 p. m.	23.847	79		E. 1	Cum. and nim.
Do		14	8 p. m.	23.875	62		E. 3	Rain.
Do		15	8 a. m.	23.9	63		NNW. 1	Cum. and strat. to E., near hor.
Do		15	2 p. m.	23.875	81		WSW. 1	Few cum.
Do		15	8 p. m.	23.930	62		E. 1	Do.
Do		16	8 a. m.	23.975	69		ENE. 1	Clear.
Do		16	2 p. m.	23.937	81	6331.15	S. 1	Few cum.
Do		16	8 p. m.	23.995	62		SE. 1	Do.
Do		17	8 a. m.	24.025	70		SE. 1	Clear.
Camp No. 1		24	6.50 p. m.	23.9	69		SE. 1	Few cum. to W.
Do		25	6 a. m.	23.926	47	6293.2	E. by S. 1	Clear.
Camp No. 2		25	3 p. m.	24.08	78		0	Do.
Do		25	6 p. m.	24.07	69		0	Few cir. to W.
Do		26	6 a. m.	24.10	46	6147.9	0	Do.
Camp No. 3		26	6 p. m.	24.47	66		0	Rain.
Do		27	6 a. m.	24.43	59	5717.3	S. by E. 1	Cir. and cum. near hor.
Camp No. 4		27	5.50 p. m.	24.5	67		0	Do do.
Do		28	5.45 a. m.	24.52	50	5663.3	W. 1	Clear.
Camp No. 5		28	6 p. m.	24.55	68		SW. 1	Do.
Do		29	6 a. m.	24.56	54	5590.6	E. 1	Do.
Camp No. 6		29	6 p. m.	24.68	72		0	Rain to S. and W.
Do		30	5.40 a. m.	24.71	53	5443.9	E. 1	Few cum. to W.
Camp No. 7		30	5.40 p. m.	24.75	72	5425.9	SW. 1	Clear.
Camp No. 8	Oct.	1	5.30 p. m.	24.76	77		SW. 1	Few cum. and strat. to E.
Do		2	6 a. m.	24.76	55	5393	E. 1	Cloudy, cir. cum.

METEOROLOGICAL OBSERVATIONS—Continued.

Number of camp.	Date.		Hour.	Aneroid.	Therm., Fah.	Approximate altitude.	Wind.	Clouds, &c.
Camp No. 9	Oct.	3	5.55 a. m.	24.8	53	5272.3	SE. 1	Clear.
Camp No. 10		3	5.40 p. m.	24.86	64		SW. 1	Do.
Do		4	5.40 a. m.	24.96	40		E. 1	Do.
Camp No. 11		5	5.30 a. m.	25.1	31		0	Do.
Camp No. 12		5	5.40 p. m.	25.2	68		0	Do.
Do		6	7.40 a. m.	25.025	40		0	Do.
Do		6	2 p. m.	24.93	84		SE. 2	Floating clouds, cum., and strat.
Do		6	5.30 p. m.	24.92	70		SE. 1	Do do do.
Do		7	5.55 a. m.	24.9	43	5182.1	S. 1	Do do do.
Camp No. 13		7	3 p. m.	24.89	71		S. by W. 3.	Cloudy, cum.
Do		7	6.45 p. m.	24.93	61		S. 3	Do.
Do		8	5.45 a. m.	24.99	35	5163.7	0	Clear.
Camp No. 14		8	5.30 p. m.	24.24	60	5950.7	SW. 1	Do.
Camp No. 15		9	5.45 a. m.	24.35	30		SW. 1	Do.
Do		9	2 p. m.	24.30	58		NE. 1	Do.
Do		9	5.30 p. m.	24.30	51		NE. 1	Do.
Do		10	6.20 a. m.	24.33	27		W. 1	Do.
Do		10	2 p. m.	24.30	60		NE. 2	Do.
Do		10	5.25 p. m.	24.30	52		NE. 1	Do.
Do		11	6 a. m.	24.33	29	5687.4	S. 1	Do.
Camp No. 16		11	5.40 p. m.	22.93	40		NE. 1	Do.
Do		12	6 a. m.	22.95	30	7229.6	NE. 1	Do.
Hill near Camp No. 16		12	3 p. m.	22.8	53	7545.7	NE. 1	Do.
Camp No. 17		12	5.40 p. m.	23.8	43		N. 1	Do.
Do		13	6 a. m.	23.11	29		NE. 1	Do.
Do		13	6 p. m.	23.09	46		S. by E. 1	Do.

Do	14	6 a. m.	23. 1	32		0	Do.
Do	14	2 p. m.	23. 11	65		S. 1	Do.
Do	14	5. 45 p. m.	23. 11	48		S. 1	Do.
Do	15	6 a. m.	23. 12	31	7073. 8	0	Do.
Camp No. 18*	15	2 p. m.	23. 23	59		SE. 1	Do.
Do	15	6 p. m.	23. 23	48		E. 1	Do.
Do	16	6. 15 a. m.	23. 23	21		0	Do.
Do	16	2 p. m.	23. 28	62		SW. 1	Do.
Do	16	6 p. m.	23. 28	51		0	Do.
Do	17	6. 15 a. m.	23. 26	14		E. 1	Do.
Do	17	2 p. m.	23. 25	63		NE. 1	Do.
Do	17	6 p. m.	23. 27	48		E. 1	Do.
Do	18	6 a. m.	23. 24	6		0	Do.
Do	18	6 p. m.	23. 24	47		0	Do.
Do	19	6 a. m.	23. 22	10		0	Do.
Do	19	2 p. m.	23. 20	69		SW. 2	Do.
Do	19	6 p. m.	23. 18	50		E. 1	Few strat. near hor. to N.
Do	20	6 a. m.	23. 12	14		E. 1	Do do.
Do	20	2 p. m.	23. 12	66		S. 1	Clear.
Do	20	6 p. m.	23. 11	53		SE. 1	Do.
Do	21	6 a. m.	23. 10	20		0	Do.
Camp No. 19	21	2 p. m.	23. 45	69	6963. 6	S. 1	Do.
Do	21	6 p. m.	23. 46	55		S. 1	Do.
Do	22	6 a. m.	23. 48	32	6764. 9	N. by E. 1	Do.
Camp No. 20	22	6 p. m.	23. 41	48		0	Do.
Do	23	6 a. m.	23. 42	22	6644. 9	W. by N. 1.	Do.
Camp No. 21	23	6 p. m.	23. 76	53		0	Do.
Do	24	6 a. m.	23. 775	27	6329. 4	E. 1	Light clouds, cir.
Camp No. 22	24	6 p. m.	24. 87	61		NW. 2	Clear.
Do	25	5 a. m.	24. 87	33	5158. 3	NW. 2	Do.
On the road	25	10. 40 a. m.	24. 33	64	5862. 6	E. 1	Thin clouds, strat.
Camp No. 23	25	6 p. m.	24. 72	52		0	Do.
Do	26	6 a. m.	24. 67	18	5275. 4	E. 1	Clear.

METEOROLOGICAL OBSERVATIONS—Continued.

Number of camp.	Date.		Hour.	Aneroid.	Therm., Fah.	Approximate altitude.	Wind.	Clouds, &c.
Camp No. 24	Oct.	27	6 a. m.	24. 95	17	5638. 4	N. 1	Thin clouds, strat.
Camp No. 25		27	6. 30 p. m.	24. 43	46		N. 1	Clear.
Do.		28	6. 30 a. m.	24. 51	31		0	Do.
Do.		28	6 p. m.	24. 72	55	5489	W. 1	Thin cir. strat.
Camp No. 26		29	6 a. m.	24. 76	36		E. 2	Do.
Do.		29	2 p. m.	24. 82	74		NW. 1	Do.
Do.		29	6 p. m.	24. 83	58		W. 1	Thin strat.
Do.		30	6 a. m.	24. 81	33	5248. 3	E. 1	Clear.
Camp No. 27		30	6 p. m.	25. 37	67		W. 1	Do.
Do.		31	6 a. m.	25. 24	34	4710. 7	E. 1	Do.
Camp No. 28		31	2 p. m.	25. 35	80		NE. 1	Do.
Do.		31	6 p. m.	25. 36	62		NE. 1	Do.
Do.	Nov.	1	6 a. m.	25. 42	30		NE. 1	Do.
Do.		1	2 p. m.	25. 46	81		S. 1	Do.
Do.		1	6 p. m.	25. 46	61		NNW. 1	Do.
Do.		2	6 a. m.	25. 54	33	4612. 8	N. 1	Do.
Camp No. 29		3	6 a. m.	26. 36	42	3562. 6	W. 1	Do.
Camp No. 30		4	6 a. m.	25. 64	56	4378. 5	E. 1	Do.
Camp No. 31		5	6 a. m.	26. 47	50	3563. 2	NW. 1	Do.
Camp No. 32		5	6. 30 p. m.	28. 91	63		N. 1	Do.
Do.		6	6 a. m.	28. 90	35		0	Do.
Do.		6	2 p. m.	28. 86	87		SW. 1	Do.
Do.		6	6 p. m.	28. 80	63		0	Thin cum. strat.
Do.		7	6 a. m.	28. 78	38	1141. 6	0	Do.
Camp No. 33		7	6 p. m.	28. 84	64		0	Cloudy, cum.
Do.		8	6 a. m.	28. 85	41	1140. 4	0	Do.

Camp No. 34	8	6 p. m.	28.95	63	1036.3	0	Do.
Camp No. 35	9	2 p. m.	28.86	78		S. 1	Do.
Do	9	6 p. m.	28.83	59		SW. 1.	Few cum. and strat. near hor.
Do	10	6 a. m.	28.88	43	1139.5	W. 1	Clear.
Camp No. 36	10	6 p. m.	28.90	66		N. 1	Clear, norther.
Do	11	6 a. m.	28.95	57	1075.3	N. 1	Do.
Camp No. 37	11	2 p. m.	28.98	73		N. 3	Do.
Do	11	6 p. m.	29	69		N. 3	Do.
Do	12	6 a. m.	29.10	60	984.8	N. 2	Do.
Camp No. 38	12	2 p. m.	29.12	76		N. 2	Few cir. strat., norther.
Do	12	6 p. m.	29.13	63		N. 1	Clear, norther.
Do	13	6 a. m.	29.16	48	875.8	N. 1	Do.
Camp No. 41	15	6 p. m.	29.14	57	865.7	0	Do.
Camp No. 42	16	6 p. m.	29.26	60	755.1	S. 1	Few strat.
Camp No. 45	19	6 p. m.	29.50	62		N. 2	Do.
Do	20	6 a. m.	29.56	43	496.9	N. 1	Few cir. strat.
Camp No. 49	23	6 p. m.	29.75	48		NE. 1	Clear.
Do	24	7 a. m.	29.75	27	287	NE. 1	Do.

REPORT

ON

THE NATURAL HISTORY

OF THE

COUNTRY PASSED OVER BY THE EXPLORING EXPEDITION UNDER THE COMMAND OF BREVET CAPTAIN L. SITGREAVES, U. S. TOPOGRAPHICAL ENGINEERS, DURING THE YEAR 1851.

BY S. W. WOODHOUSE, M.D.,

SURGEON AND NATURALIST TO THE EXPEDITION.

REPORT.

ACADEMY OF NATURAL SCIENCES,
Philadelphia, January 25, 1853.

DEAR SIR: I have the honor of submitting to you the following report of the natural history of the country over which your command passed, on the route through Texas and New Mexico to Zuñi, at which place the duties of exploration commenced.

The cause of the delay of this report has been owing to the detention of my collections, which did not arrive until late last fall. I have urged the completion of it with all possible despatch, and am now happy to inform you of its completion.

I have also taken the liberty of introducing much of the natural history of the Indian territory, in which country I had the honor to be attached to a party under your command, in a similar capacity, in the year 1849, and under Lieut. J. C. Woodruff, in the year 1850.

I was so unfortunate in the preservation of the large collection of Coleopterous insects made whilst on the Creek boundary expedition, (which were much damaged owing to the difficulties of transportation,) and became so disheartened, that I did not attempt it on the present occasion.

On my arrival in Texas, and during my stay at San Antonio, I suffered much from intermittent fever, which was the cause of the loss to me of much time that might have been profitably spent in the pursuit of my favorite studies, for that country offers a great field for the naturalist.

The party left San Antonio on the 7th of May, passing over the road laid out under the direction of Bvt. Lieut. Col. J. E. Johnston, U. S. Topographical Engineers, in the year 1849, from San António to El Paso, along which I made collections of considerable interest in the different departments of natural history, including quadrupeds, birds, reptiles, and plants; for full descriptions of which I refer you to the accompanying papers of this report.

Mr. Wright, an enterprising botanist, has passed over this route several times, and the plants have been described by Doctors Torrey and Gray, many of which have been already published by them in the Smithsonian Contributions, under the title, "Plantæ Wrightianæ."

This country is exceedingly rich in reptiles, several of which in my collection were new.

Among the birds, two I found on examination to be new, and several others new to our fauna.

Dr. LeConte has described in the proceedings of the Academy of Natural Sciences of Philadelphia, a beautiful and large *Trombidium*, which he calls *Trombidium magnificum*, and which I found in this country.

I also procured here a fine species of *Apus* (*A. longicaudatus,*) described by Major LeConte in the Annals of the New York Lyceum of Natural History, vol. 4, p. 155, pl. 9.

Frequently did I find in the road that disagreeable-looking object known to the Mexicans as the vinagron, (*Telephonis giganteus,*) and by them much dreaded.

From El Paso, passing up the Rio Grande, along which stream the vegetation alters but little, the timber being principally cotton-wood, (*Populus monilifera,*) the mezquit (*Algarobia*) extending up as far as the Jornada del Muerto, the creosote plant, (*Larrea Mexicana,*) grease-weed, (*Obione canescens,*) *Fallugia paradoxa*, and various species of artemisia and yucca, are found growing along the barren hills extremely abundant. There were but few flowers to collect. I added to my collections numerous birds and reptiles along this stream, and during our detention at Santa Fé.

On Wednesday, August 15th, 1851, we commenced our western march from Santa Fé, following the valley of the Rio Santa Fé a number of miles, and then crossing a dry, arid, gravelly plain to the Galesteo creek, the valley of which we followed a number of miles. From there we passed over to the Rio Grande, at the pueblo of San Domingo. But little of interest is presented thus far, the country for the most part being quite barren, gramma-grass (*Boutelorea*) being found in occasional patches, several species of *Opuntia*, also *Ephedra*, the *Fremontia vermicularis*, &c. From here the valley of the Rio Del Norte, as far as Albuquerque, presents but little change in regard to vegetation, with the exception of a few scattered cotton-wood trees, (*P. monilifera,*) or occasionally a few cedars, (*Juniperus.*) The grass in many places was plenty, and of good quality.

Along this river I observed numerous water-birds, such as the great and little yellow-shank tatler, (*Totanus melanoleucus* and *T. flavipes,*) the little sand-piper, (*Tringa pusilla* and *T. Schinzi,*) a new species of curlew, (*Numenius occidentalis,*) coots, (*Fulica Americana,*) avocet, (*Recurvirostra Americana,*) brant, (*Bernicla brenta,*) ducks, mallard, (*Anas Boschas,*) blue-winged teal, (*Pterocyanea coeruleata,*) shoveller, (*Spatula clypeata,*) white pelican, (*Pelecanus trachyrhynchus,*) besides several varieties of land birds, finches, &c.

Crossing the river at that place, and pursuing a western course, ascending a number of miles over a sandy, barren road, we came to a plain; from this we rapidly descended to the Rio Puerco, having passed over a barren waste upon which little was growing excepting grease-weed (*Obione canescens,*) *Franseria acanthocarpa*, or *Yerba del sapa* of the Mexicans, several species of artemisia, and a few cacti. At this stream, which was now dry, there were a few scattered cedars and cotton-woods.

Passing from here to the pueblo of Laguna, over a diversified country, with occasionally plenty of gramma-grass, (*Boutelorea*) and on the hills numerous cedars, birds and quadrupeds were very scarce: now and then an occasional reptile was to be seen. Here we encamped a few days, and near by there is growing a species of scrub oak, (*Quercus Emoryii*) also numerous cedars, (*Juniperus.*) About Acoma I found specimens of the *Datura Metel*. There were quite a number of birds among the cedars, among them the California jay, (*Cyanocorax Californicus;*) in the lake, in the vicinity of camp, there is quite a variety of water-fowl.

Following the valley of the Rio Laguna, along which I collected a variety of grasses and flowers, I also procured a specimen of the Virginia rail, (*Rallus Virginianus.*) From the head of this stream we ascended the Zuñi mountain, which is here covered with cedars (*Juniperus*) and pinons, (*Pinus edulis.*) We encamped on this mountain, at the Willow Spring, (*Ojo de la Jarra,*) a most beautiful spot; an abundance of fine green gramma-grasses (*Boutelorea* and *Chondrosium,*) with high hills on either side, everything looking fresh and green, so different from any portion of country that we had been in for months. This portion of country, and for miles back, would be of exceeding interest to a geologist.

Here were three varieties of pine and two of oak; also a rough-barked cedar, (*Juniperus pachyderma,*) a new species which Dr. Torrey has just described. I made collections of several varieties of beautiful flowers: among them was the *Gilia elegans*. Here also were to be seen a number of birds: *Tyrannula Sayi*, *Cyanacorax Californicus*, *C. Stelleri*, several chicadees, and the western blue-bird (*Sialia occidentalis.*) The *C. Californicus* were numerous, and feeding upon the nuts of the pinon, (*P. edulis*) and were exceedingly wild. *Parus montanus* and other chicadees were quite numerous.

The view on leaving the timber of this mountain was exceedingly beautiful. In front was an open plain, upon which were feeding numerous herds of antelope, (*Antilocapra Americana.*)

I have observed throughout New Mexico the *Hirundo lunifrons*, *H. bicolor*, and *Fringilla graminea*, very abundant; also, on the prairies, the *Otocoris arvensis*.

Encamped at the Inscription Rock, a singular sandstone mesa about two hundred and fifty feet high. Here I observed a new swift, of which, however, I was unable to secure a specimen, but I was close enough to become well acquainted with it; I propose for it the name of the Rock swift, (*Acanthylis saxatilis.*) I here procured a number of plants; the pinon and cedar grow about these rocks.

Between the Inscription Rock and the Ojo Pescado the country is almost barren, there being little else but grease-weed, (*Obione canescens*) and occasionally a little grass. This spring is the head of the Rio Zuñi, and about it there is an abundance of grass, but few flowers.

About five miles from the pueblo of Zuñi there is a large spring, in which the *Siredon lichenoides* is quite abundant. The valley from here to the pueblo is cultivated by the Indians. About this creek I collected a number of birds, among which were the willet, (*Totanus semipalmatus,*) blue-winged teal, (*Pterocyanea cæruleata*) green-winged teal, (*Q. Carolinensis*) great and lesser yellow-shank snipe, (*T. melanoleucus* and *T. flavipes*) Schinz', and the little sand-piper, (*Tringa Schinzii* and *T. pusilla*) sand-hill cranes, (*Grus Canadensis*) and the *Ardea Herodias*. Among the land birds were the *Tyrannula Sayi*, the mountain mocking-bird, (*Mimus montanus,*) and several varieties of finches: among them *Zonotrichia Blandingiana*, *Z. graminea*, *P. Savanna*, *S. pallida*, *S. amoena*, &c. The *Ptilogonys Townsendii* and the *Icteria viridis* were quite abundant.

I also procured a number of reptiles, one of which proved to be new, and has been described by Dr. Hallowell under the name of *Pityophis affinis*. I also added many specimens of plants to my collection.

During our detention at the pueblo of Zuñi I was unfortunately bitten by a rattlesnake (*Crotalus le Contei*,) a full account of the effects and the treatment of which I have given in my medical report. This was a sad accident for me, more particularly at this time, as we were just about commencing the most important and interesting part of the exploration. I did not recover the use of my left hand for months afterwards, and this accounts for the small collection of birds, quadrupeds, and reptiles procured by me west of this place, being entirely dependent upon the exertions of the men. Oftentimes, as I was riding along, did I see a bird, reptile, or plant that I had not before seen, and was unable to procure them: a man at that time not being near me, I was forced to pass them by.

On leaving here, and following down the Rio Zuñi, there is but a slight change in the vegetation, cacti and grease-weed being abundant, and gramma-grasses in numerous places; the trees being principally cedar. I observed in but one place a few poplars, (*Populus augustifolia*,) and near these trees was a beaver-dam, in which was growing cat-tail (*Typha latifolia;*) and near here I procured some interesting plants—among them was a beautiful blue convolvulus, and a small running vine with a scarlet flower, much resembling that of the cypress-vine. The *Lobelia Canadensis* was also quite abundant. I found the *Hirundo lunifrons*, with its nests built under the projecting sandstone rocks. The *Sturnella neglecta* was to be seen in different parts of the valley.

Near our first camp on the Little Colorado there were the lodges of the beaver (*Castor fiber*) to be seen, but no timber. On the banks of this stream were growing a species of swamp-willow, (*Salix*.) The grass here was of a good quality.

After leaving Camp No. 5 some distance, we passed the remains of a large petrified tree, the wood of which was agatized. It was broken in pieces, as if by a fall, and its root was up-hill. It must have been upwards of three feet in diameter.

Much of this country presents a barren appearance, being covered with the *Obione canescens*, and species of artemisia, *Franseria acanthocarpa*, and plants of this description. Deer, (*C. macrotis*,) antelope, (*A. Americana*,) and the black-tailed hare, (*L. callotis*,) are quite abundant.

After leaving Camp No. 6 about six miles, we passed over a beautiful rolling prairie covered with gramma-grass, and numerous large cedars, (*Juniperus*,) the fruit of which is upwards of half an inch in diameter. This, in all probability, Dr. Torrey will find to be a new species. The men killed a specimen of the porcupine, (*Hystrix dorsata*.) Thus far, I have observed but few flowers or birds.

Near the first cañon of this river, growing on the rocks were varieties of cacti, and at the point where we first crossed the river were plenty of grape-vines, (*Vitis*.)

The vegetation along this stream varies but little. As we approached the San Francisco mountain, the cotton-wood (*P. monilifera*) became more abundant; also scattered cedars along different portions of the route. Among the drift in one place I observed the remains of what appeared to me to be the black-walnut, (*J. nigra*,) showing that this tree must grow either on this stream or its tributaries. Gramma-grasses were found along different portions of the valley, in some places quite abundant. Portions of agatized wood are found abundant along various portions of this stream. Among the quadrupeds *Cervus macrotis*, *Antilocapra Americana*, *Ursus ferox*, and the *Lepus callotis*, abound. The variety of birds was not great; among them was Nuttall's whip-poor-will, (*Caprimulgus Nuttallii*,) of which I procured several specimens. The white-crowned finch, *Z. leucophrys*, was quite abundant. Water-birds were more numerous. I procured two specimens of ibis, (*I. guarauna ?*)

Leaving this river, we commenced our ascent of the San Francisco mountain. In many places the ground was perfectly black with drifted scoria. Passed a number of small walnut-trees, bearing a small nut, the miniature of our black-walnut, which Dr. Torrey has found to be new. He calls it *Juglans Whippleana*. I believe it to be the same as I collected at the Painted Camp, in Western Texas. Much of the ground is covered with fine gramma-grass and cedars; in other places are the trees to be found without the grass, and the ground covered with fine drifting scoria.

At Camp No. 15, I procured a number of birds; among them were the *Ptilogonys Townsendii*, *Troglodytes obsoletus*, *Struthus Oregona*, *Lophophanes inornatus*, *Sylvicola Auduboni*, &c. Collected a number of grasses, and a parasite (*Phoradendron*) which grows here very abundantly on the cedars; also the *Datura metel*.

Continued ascending the mountain. Grass abundant, and several varieties of pine. Both birds and plants are more numerous.

We were ascending four days, and then commenced the descent. This mountain presented a beautiful appearance, as the foliage of the oaks, (*Quercus*,) a species between the post and white-oak, and the trembling aspen, (*P. tremuloides*,) were changing. These, intermingled with the evergreens, such as the pines and cedars, added much to the beauty of the scene. There were two varieties of pine, (*P. edulis* and *P. brachyptera*;) also a spruce, the fruit of which I could not obtain.

The cry of the panther (*Felis pardalis*) was occasionally to be heard. The grisly bear (*Ursus ferox*) inhabits this mountain. Here I procured specimens of that beautiful, large, and tufted-eared squirrel, (*Sciurus Abertii*,) together with a new pouched jumping rat, (*Perognathus penicillatus*;) also a specimen of the pouched sand-rat, (*Geomys fulvus*;) also a variety of birds—among them a new snow-finch, (*Struthus caniceps*.) Among the birds that I observed were the *Cyanocorax Californicus*, *Corvus Corax*, *Corvus Americanus*, *Zonotrichia leucophrys*, *Z. graminea*, *Struthus Oregona*, *Spizilla pallida*, *Paserculus Savanna*, *Carpodacus purpureus*, *Pyranga Azarae*, (a bird new to our fauna,) *Picus torquatus*, *P. pubescens*, numerous tits, *Lophophanes inornatus*, *Parus montanus*, *Sitta Carolinensis*, *S Californicus*, and numerous other birds. I here made a large collection of plants.

Between Camps Nos. 18 and 19 we passed through some fine pine timber, interspersed with oak and aspen. In one place I found specimens of a white clover (*Trifolium*) quite abundant. Deer abundant.

At Camp No. 20, found the rough-barked cedar, (*Juniperus pachyderma*,) and I procured specimens with the fruit; also found here the maguey plant, (*Agave Americana*,) which, together with the fruit of the pine, (*P. edulis*,) affords the Yampai Indians a large portion of their food.

About this camp a beautiful species of phlox was growing quite abundantly. From here to the head of Bill Williams's Fork we passed through alternate portions of timber and open prairie, the former predominating; the day before arriving at which, we saw numerous wild turkeys, (*M. gallopavo*) Stellers' jay, (*C. Stelleri.*) Deer plenty. On the edge of the mountains the air is filled with a sweet perfume from the *Fallugia paradoxa*. I here procured a number of specimens of plants.

On leaving this stream the timber became scarce and the grass dry and thin. I here saw specimens of Gambel's partridge, (*Callipepla Gambelii*) the first that I have seen since leaving El Paso. Antelope, hare, and wolves are abundant, one of which was fox-colored, and about the size of the *Canis latrans*.

On the morning when we left Camp No. 23, at the spot where we halted to rest the mules, we procured a number of berries of the yellow-wood, (*Berberis pinnata*) which tasted much like the fruit of our chicken-grape; these assisted to quench our thirst. Here we again found the rough-barked cedar, (*J. pachyderma*) *Fallugia paradoxa;* also, numerous deer, antelope, and hare. We again commenced descending, passing through cedar and pine timber, and occasionally passing through some fine gramma-grass.

After leaving Camp No. 24 and passing over a plain, the first part of which was covered with pinon, cedar, and yellow-wood, the ground becomes more bare, producing cacti, *Ephedra Americana*, *Franserea*, species of artemisia, *Yucca agrifolia*, *Agave Americana*, and *Obione canescens*. From this valley we commenced ascending a mountain of quartz rock, on the top of which the cedars become quite thick; here is a portion of country apparently without animal life.

At Camp No. 24. This night we made our fires of the yellow-wood, which imparts much heat and a peculiar, pleasant odor. On leaving this camp, which was on the edge of a large valley in which there was plenty of gramma-grass, we again entered the dense cedar timber; on leaving this, cacti and the *Obione canescens* abound.

Camp No. 25 was in a small valley, with a little grass; on the side-hills were growing cedars, yellow-wood, and *Fallugia paradoxa*. There were varieties of cacti, among which were some fine specimens of mammilaria. A truly miserable country is this, where an insect can hardly exist.

Camp 26 in the mountains, near two small springs; the vegetation is the same as at the last camp. Here I procured a specimen of the prairie-wolf, (*Canis latrans*) which, becoming desperate, rushed to the spring, and was killed by one of the men with a stone, we having possession, perhaps, of the only water in this section of country for miles. The ravens (*C. Corax*) were hovering over us whilst we remained here, eagerly watching our famished mules. Since we left Bill Williams's Fork there have been clouds seen every day, and anxiously did we watch for rain; but this seemed a thing impossible, to rain in this miserable country, where everything appears to be an enemy, and is armed with a thorn or a poisonous sting. Since we left Zuñi I have observed but few reptiles: tarantulas (*Mygale*) abound in this section.

Following down a valley from here until within two miles of Yampai creek, there was but little change: there we found cedars, some dry grass, cacti, and a few birds; not a flower have I seen for several days.

Camp No. 28, at Yampai creek, water and grass abundant, (what a luxury!) One cannot appreciate the luxury of a bath until he has been in the condition that we were in when we arrived at this place.

Here was some life—birds, quadrupeds, and plants. The banks of the stream are covered by a small scrub oak, (*Q. Emoryii*) several species of willow, (*Salix*) over which in many places were creeping grape-vines, (*Vitis*) forming dense thickets; also a few cotton-wood trees, several species of currants, (*Ribes*) artemisia, *Obione canescens*, *Ephedra*, and several varieties of cactus. I also preserved a number of plants, Gambel's partridge, (*C. Gambelii*) Townsend's Ptilogonys (*Ptilogonys Townsendii*,) and *Struthus Oregona*, &c.

Mr. Le Roux, our guide, informs me that there is a small black eagle found in this country, but I did not get a sight of it.

Following down the valley of this creek, the water of which soon sinks and is lost in the sand, the dense thickets are changed for scattering mesquite (*Algarobia*) and a species of acacia, together with numerous cacti.

From here to Camp 30, which was at the foot of the mountain, hardly a blade of grass is to be seen. Ascending a sandy aroyo, there was to be seen occasionally a scattered willow (*Salix*,) mesquite (*Algarobia*,) locust (*Acacia*,) cotton-wood, (*Populus*) hediondea, or stinking weed of the Mexicans, (*Eriodictyon*) and a singular low shrub, with the stem and leaves covered with an adhesive varnish. As we ascended the mountain, at the foot of which we found cedars, (*Juniperus*) and the summit covered with pinons, (*P. edulis*) I saw but one bird: this was the hermit thrush (*Turdus solitarius*.)

At Camp 31, on the mountain, scarcely a blade of grass is to be found, but cacti, palmea, (*Yucca*) and rocks abound. Passing down the mountain, we crossed over a valley quite barren, with the exception of grease-weed (*Obione canescens*,) *Eriodictyon*, *Ephedra Americana*, and a species of *Yucca*, growing upwards of ten feet in height, having a large trunk, and branching about four or five feet above the ground.

We encamped on the opposite side of this valley, at the foot of the mountain, without grass or water, and gravel-stones so thick that one is unable to find a smooth spot to spread his blankets. In ascending this mountain we found numerous willows, covered with grape-vines. At the top of this mountain pass we had a view of the long-looked-for river, the great Colorado of the West. This was hailed with joy by every one, and the mountains were made to ring with their repeated cheers. On our descent I observed two species of cactus that I have not seen before. On the banks of this stream are growing willows (*Salix*) of several kinds, one of which, the *Salix augustifolia*, affords good fodder for the mules; they oftentimes, whilst on this stream, had nothing else, and in fact we thought that we were doing well when we found this species of willow; also arrow-wood (*Tessaria borealis*,) and in some places grass.

The vegetation from this point to the mouth of the Gila, and down the Colorado to the entrance of the Great Desert, varies but little, if any, being cotton-wood, (*Populus augustifolia* and *P. monilifera*,) mesquite (*Algarobia glandulosa*) with straight pod and sweet pulp, and the mesquite (*Prosopis odorata*) with a spiral pod, several species of willow (*Salix*,) arrow-wood (*Tessaria borealis*,) a variety of cacti—one of which was very conspicuous, the *Cereus giganteus*—several species of grass, and a species of cane, growing about the lagunas, (*Arundo phragmites*, Torr.,) and a singular-looking tree, apparently a species of acacia, growing from twenty to thirty feet high, leaves very small, and bark light green, bearing a small bean with a long pod.

Birds were scarce; the *Callipepla Gambelii* very abundant. A variety of water-birds, such as sand-hill crane, snipe, ducks, geese, &c. The *Cervus macrotis* were occasionally to be seen; the *Lepus callotis* was quite abundant; also the *Canis latrans*.

On the desert of the Colorado there is but little growing, excepting grease-weed. On it are to be found the remains of old *Anodons*, showing that it is subject to be overflowed by the Colorado; but I believe there was but one species of that shell. It is singular that in the Great Colorado and its tributaries I did not procure or see a shell of the genus *Unio*. At New river there are numerous mesquite trees and careless-weed, (*Chenopodium*,) the seed of which the Indians grind and make into bread. The laguna of this creek was filled with an infernal water, being green, thick, salt, and stinking. In and about this we found a number of ducks and small snipe.

As we approached Carissa creek, we found fossil oyster-shells, (*Exogyra*.) On the hills about this creek were growing numerous cacti; also the St. Joseph rod, (*Foquera spinosa*,) which being in full bloom, looked beautiful. Mesquite, arrow-wood, and salt grass, were abundant. On this creek there has been a grove of large palms, a few of which now remain.

At Valliecitas we found plenty of grass, and the *Agave Americana*, growing abundantly.

Ascending the valley from San Felipe, the mountains on either side are covered with tall pines. On the dividing ridge we found a species of live-oak, (*Quercus agrifolia*,) and the button-wood, (*Platanus Mexicanus*.) There was but little variation in the vegetation between here and the Pacific, excepting many of the hills were covered with wild oats. Being late in the season, and snow on the Coast range, there were no plants to be collected. Birds were scarce.

Near Santa Isabelle, in a large laguna, there were a number of ducks, among them the canvass-back (*Nyroca Valisneria*,) red-neck (*N. ferina*,) mallard (*Anas Boschas*,) teal (*Pterocyanca cærulcata*,) &c.

For fuller and more detailed accounts of the natural history, I will have to refer you to the separate papers on each branch accompanying this.

I must here offer my grateful acknowledgments to the kind assistance afforded me by Edward Hallowell, M. D., and Professors Torrey, Baird, and Girard, in their various departments of natural history.

To the Messrs. Kern much credit is due for their praiseworthy drawings, which have required time and minute study of nature.

I am, sir, with much respect, your obedient servant,

S. W. WOODHOUSE, M. D.,
Surgeon and Naturalist to the Expedition.

Brevet Captain L. Sitgreaves,
U. S. Topographical Engineers, Washington.

ZOOLOGY.

MAMMALS AND BIRDS, BY S. W. WOODHOUSE, M. D.
REPTILES, BY EDWARD HALLOWELL, M. D.
FISHES, BY PROF. S. F. BAIRD AND CHARLES GIRARD.

MAMMALS.

BY S. W. WOODHOUSE, M. D.

Genus VESPERTILIO, Linn.

Vespertilio Carolinensis, Geoff.—The common Carolina Bat.
  Vespertilio Carolinensis, Geoff. Ann. Mus. d'hist. Nat., tom. 8, pl. 47.

This bat is common throughout the Indian territory and Texas.

Whilst on the Rio Grande, New Mexico, I shot a long-eared bat, which specimen was unfortunately lost before it could be prepared for preservation.

Genus CONDYLURA, Illiger.

Condylura cristata, Linn.—The Star-nosed Mole.
  Sorex cristatus, Linn., ed. 12, p. 73.
  Condylura cristata, Harlan, Faun. Amer., p. 36.
  Condylura macroura, Harlan, Faun. Amer., p. 39.
  Condylura cristata, Aud. & Bach., vol. 2, p. 139, pl. 69.

This animal is very common in the Indian territory.

Genus URSUS, Linn.

Ursus Americanus, Pallas.—The Black Bear.
  Ursus Americanus, Pallas, Spic. Zool., vol. 14, p. 6–26.
  " " Godman, Nat. Hist., I, p. 114.—Harl. Faun. Amer., p. 51.

This animal is common in the Indian territory, especially at the Cross Timbers and in the timber of the Arkansas river and its tributaries. It is also very common in the timbered portions of country in Texas and New Mexico.

Ursus ferox. Lewis & Clark.—The Grisly Bear.
  Ursus horribilis, Ord. Say. in Longs. Exp., vol. 2, p. 224, note 34.
  " " Godman, Nat. Hist., vol. 1, p. 131.
  Ursus cinereus, Desm. Mammal, p. 164.
  Ursus canescens, Hamilton Smith. Grif. An. King., vol. 2, p. 229.

This formidable animal is found in the mountainous portions of New Mexico and California. About the San Francisco mountain, near the Little Colorado river, New Mexico, I have frequently seen fresh tracks without having met with the animal, although it was there quite abundant.

Genus PROCYON, Storr.

Procyon lotor, Linn.—The Raccoon.
Ursus lotor, Linn. Gmelin.
Vulpes Americana, Charleton.
Procyon lotor, Godman, Nat. Hist., vol. 1, p. 163.
" " Aud. & Bach. Quad. N. A., vol. 2, p. 74, pl. 61.

Quite abundant in the Indian territory and in Texas.

Genus PUTORIUS, Cuv.

Putorius erminеus, Linn.—The Ermine Weasel.
Mustela erminea, Linn. Gmelin 1, p. 98
" " Godman, Nat. Hist., vol. 1, p. 193.

This beautiful and active little animal is quite common in the Indian Territory.

Genus MEPHITIS, Cuv.

Mephitis Americana, Desm.—The common Skunk.
Viverra Mephitis, Gmel. L. Syst. Nat., p. 88, No. 13.
Mephitis Americana, Sabine.
Enfant du diable, Charlevoix, Nouv. Franc. 3, 133.
Mephitis Americana, Godman, Nat. Hist., vol. 1, p. 213.

Very common in the Indian territory, particularly about the Cross Timbers.

Mephitis macroura, Licht.—The Great-tailed Skunk.
Mephitis macroura, Licht. Mam. Berlin, Mus., pl. 46.
" " Aud. & Bach. Quad N. A., pl. 102.

This beautiful animal I have found abundant on the prairies throughout Western Texas.

Genus LUTRA, Ray.

Lutra Canadensis, Sabine.—The Canada Otter.
Lutra Canadensis, Sabine, Franklin's Jour., p. 653.
Lutra Brasiliensis, Harlan, Faun. Amer., p. 72.
" " Godman, Nat. Hist., vol. 1, p. 222.
Lutra Canadensis, Aud. & Bach. Quad. N. A., vol. 2, p. 2, pl. 51.

The otter I have never seen abundant, but have occasionally met with it in the small streams in the Indian territory.

Genus BASSARIS, Licht.

Bassaris astuta, Licht.—The Ring-tailed Bassaris.
Bassaris astuta, Licht. Mam. Ber. Mus., pl. 43.
" " Schreber, Saugt. Sup., vol. 2, p. 278.
" " Aud. & Bach. Quad. N. A., vol. 2, p. 314, pl. 98.

This beautiful little animal I saw first at the Painted Caves, near the Rio San Pedro, Texas. It was found asleep in the crevice of a rock by the men, and by them killed and brought into camp.

It is common in some parts of California, where it is tamed by the inhabitants, and kept by them for the purpose of catching rats and mice, in which it is said to be very expert. I have seen it thus domesticated.

Genus CANIS, Linn.

Canis gigas, Towns.—The Buffalo Wolf.
Lupus gigas, Towns, Jour. A. N. Sci., Phila., N. S., v. 2, p. 75.
Lupus occidentalis, Peale, U. S. Ex. Exp. Zool., p. 26.

I have observed this animal frequently in the Indian territory, in that portion frequented by the buffalo. It appears to be solitary in its habits, and never have I seen more than two at the same time. Whilst in New Mexico or Texas I did not observe it, although, from descriptions persons have given me of a large wolf, I believe it to exist there.

Much confusion prevails in the books in regard to the wolves of our country, and this can only be satisfactorily settled by a more careful examination and comparison of their crania and skins than has hitherto been in the power of any one to make.

Canis nubilis, Say.—The Dusky Wolf.
Canis nubilis, Say, Longs. Exp., vol. 1, p. 333.
" " Godman, Nat. Hist., vol. 1, p. 265.

Very common throughout the Indian territory, Texas, and New Mexico.

Canis latrans, Say.—The Prairie Wolf.
Canis latrans, Say, Longs. Exp., vol. 1, p. 168.
" " Godman, Nat. Hist., vol. 2, p. 260.

Very common throughout the Indian territory, Texas, and New Mexico. I obtained specimens of this animal on the Great Colorado river, one of which was killed by one of the soldiers with a club. Our party having kept possession of two small springs for two days and nights, these animals became desperate, and would come to drink whilst the men and their mules were standing there. These springs were probably the only sources of water in that neighborhood.

CANIS FRUSTROR, Woodhouse.—The American Jackal.

Canis frustror, Woodhouse, Proc. A. N. Sci., Phila., vol. 5, p. 147.

CHAR. ESSENT.—Hair cinereous-gray, varied with black above; longer on the vertebral line; legs fulvous.

	Feet.	Inches.
Dimensions.—Total length from the tip of the nose, including the tail, with the exception of the hair at tip..........	2	7
Total length of vertebræ of tail..............................		$8\frac{2}{10}$
Total length of ears..............................		$4\frac{3}{10}$
Total length of fore leg..............................		9
From the anterior canthus of the eye to the tip of nose		$2\frac{7}{10}$
From anterior angle of ear to posterior canthus of eye		$2\frac{4}{10}$
Between the anterior angles of the ears..............		$2\frac{5}{10}$

Description.—Hair at base fulvous and woolly, middle of its length white and tipped with black; ears erect, pointed at tip, cinnamon-color behind and at the base, inside dirty white, sides paler than the back; belly brownish white; breast brown; chin white; legs cinnamon-color; the nose, from the eyes to the tip, cinnamon-color; cheeks gray; space between the ears reddish-brown; tail fulvous below, dark gray above, black at tip, slightly bushy; iris light brown; lips white, tipped with black; it has three series of setæ, on the upper lip, above the eyes, and on the sides of the cheeks.

The skull of this animal resembles more closely the jackal of the Old World than any known species of wolf.

Habits.—This animal I first saw at Fort Gibson, on the Neosho river, which place they frequent at night in numbers, making their way to a ditch where the offals of the garrison are thrown.

Their bark is sharp, like that of a terrier, followed in quick succession; then a prolonged cry, much like that of a hound. Four or five of them make as much noise as twice their number of terrier dogs, so that a stranger on hearing them is apt to be deceived as to their number. I have seen them on all parts of the prairies in the Indian territory; but they appear to be more abundant near the settlements. They prowled frequently about our camp at night, keeping up an incessant barking.

I observed but few of them in Texas. I procured a male and female of this animal whilst in the Indian territory, which are in my collection.

This animal has hitherto been confounded with the *Canis latrans*, Say. There are, I believe, several small species of wolves which are different, and are all known to the Mexicans by the general name of *Coyote*.

Genus VULPES, Desm.

VULPES CINEREO-ARGENTATUS, Gmel.—The Gray Fox.

Canis cinereo-argentatus, Godman, Nat. Hist., vol. 1, p. 280.

Found throughout the Indian territory, Texas, and New Mexico. The Pueblo Indians of the latter country prize the skin of this animal very highly, and make use of it as an ornament of dress in some of their dances.

Genus FELIS, Linn.

Felis pardalis, Linn.—The Leopard Cat, or Ocelot.
Felis pardalis, Linn, p. 62.
" " Harlan, Fauna, p. 96, Schreber Saugt. Sup., v. 2, p. 496.
" " Aud. and Bach. Q. N. A., vol. 2, p. 258, pl. 86.

This beautiful species, known in Texas as the leopard cat, is common throughout that country and in the Indian territory, preferring thickets on the borders of streams, and often carrying off the game which a hunter has just shot before he has a chance to enter the thicket. I have seen it jump out of a tree and alight on the ground and run swiftly before me, while riding on horseback

Felis concolor, Linn.—The Cougar, or Panther.
Felis concolor, Linn, Syst. Nat. ed. Gmel, 1, p. 79
" " Schreb. Saugt. Sup., vol. 2, p. 467.
" " Harlan, Fauna Amer., p. 94.
" " Godman, Nat. Hist., v. 1, p. 291.
Felis puma, Shaw, Gen. Zool., 1, 2, p. 158, tab. 89.

I have never found this animal very abundant. It was observed in the Indian territory in the neighborhood of a swamp; in Texas, in the open prairie; and in New Mexico, in the mountains.

Genus DIDELPHIS, Linn.

Didelphis Virginiana, Shaw.—The Virginia Opossum.
Didelphis Virginiana, Shaw's Zool., vol. 1, p. 73.
" " Godman, Nat. Hist., vol. 2, p. 7.
" " Aud. and Bach, vol. 2, p. 107, pl. 66.

Very abundant throughout the Indian territory and Texas. I did not observe it in New Mexico.

Genus CASTOR, Linn.

Castor fiber, Linn.—The American Beaver.
Castor fiber, Linn, Syst., 12th ed., p. 78.
" " Godman, Nat. Hist., vol. 2, p. 21.
Castor ordinaire, Desm. Mam.
Castor Americanus, F. Cuvier.
" " Rich, F. Bor. Amer., v. 2, p. 105.
Castor fiber, Aud. and Bach. Quad. N. A., vol. 1, p. 347, pl. 46.

I observed a few of these animals in the Indian territory and Texas; but they are quite plentiful in different parts of New Mexico. On our route we found it in the Zuñi, Little and Great Colorado rivers. In the latter it was quite abundant.

Genus MUS, Cuv.

MUS MUSCULUS, Linn.—The common Mouse.
Mus musculus, Linn, 11th ed., p. 83.
" " Say, Longs. Exp., vol. 1, p. 262.
" " Godman, Nat. Hist., vol. 2, p. 84.

Common about all the settlements in the Indian territory, Texas, New Mexico, and California.

MUS DECUMANUS, Linn.—The brown or Norway Rat.
Mus decumanus, Linn, Syst. Nat. ed. Gmel., t. p. 127.
" " Godman, Nat. Hist., vol. 2, p. 78.
" " Schreber Saugthiere, p. 645.
" " Aud. and Bach. Quad. N. A., vol. 2, p. 22, pl. 54.
Mus aquaticus, Gesner's Quad, p. 732.

Found throughout all the settlements wherever there were white settlers. It has made its appearance in California within the last five years, and now is quite common in all the large towns.

Genus HESPEROMYS, Waterhouse.

HESPEROMYS TEXANA, Woodhouse.—The Texas Mouse.
Hesperomys Texana, Woodhouse, Proc. A. N. S., Phila, vol. vi.

CHAR. ESSENT.—Smaller than the *H. leucopus;* head shorter and more blunt; ears smaller and more round, brown above; white, inclining to yellowish, beneath.

Description.—Head large, blunt; eyes prominent and dark-brown; ears erect, roundish, oval, blunt, sparsely covered outwardly with short appressed brown hairs, inwardly with gray; thumb of fore-feet a tubercle, furnished with a long blunt nail; two middle toes, the longest subequal; hind feet furry, with the exception of the sole; whiskers long.

Color.—Hair dark-cinereous, above tipped with pale brown and dusky, so as to have rather a mottled appearance; beneath with white, inclining to yellowish—the two colors, that is to say above and beneath, separated tolerably distinctly from each other in a straight line; tail above brown, beneath white; nose mixed brown and gray, or pale brown; whiskers black and gray; legs white on their inner surface only; feet white, the hairs projecting over the nails.

Habitat.—Western Texas.

Dimensions.—Total length from tip of nose to root of tail	$2\frac{1}{10}$	inches.
Total length of tail	$2\frac{1}{10}$	"
Total length of head	$1\frac{1}{10}$	"
Height of ear	$\frac{4}{10}$	"

Breadth of ear	$\frac{3}{10}$	inch.
Fore legs	1	"
Hind legs	$1\frac{9}{10}$	"

Obs.—I procured this pretty little animal on the Rio Grande, near El Paso. Of its habits I know nothing.

Hesperomys leucopus, Raf.—The American white-footed Mouse.
Mus sylvaticus, Forster, Phil. Trans., 62, p. 380.
Musculus leucopus. Raf., Amer. Month. Rev., Oct., 1818, p. 444.
Mus agrarius, Godman, Nat. Hist., vol. 2, p. 88.
Mus leucopus, Aud. and Bach. Quad. N. A., vol. 2, p. 300, pl. 40.

Common in the Indian territory and Texas.

Genus PEROGNATHUS, Pr. de Wied.

Perognathus penicillatus, Woodhouse.—The penecillated Pouched Mouse.
Perognathus penicillatus, Woodhouse, Proc. A. N. Sci., Phila., vol. 6, p. 200.

Char. essent.—Above yellowish brown, beneath white; tail longer than the head and body, penecillate with light-brown hair.

Form.—The head is of moderate size, and not easily distinguished from the neck. The incisors are small, and but partially exposed; upper ones are sulcate in the middle. Nose small and rather pointed, extending some distance beyond the incisors; whiskers light-brown, and irregularly mixed with black; eyes dark-brown, and of a moderate size; ears nearly round and moderate, almost naked anteriorly, and covered posteriorly with fine fur; the tragus and antitragus are quite prominent; the external meatus is protected by a tuft of small black bristles, extending across the ear; tail about one and a quarter inch longer than the head and body, round, gradually tapering, and covered with hair—on the superior and middle portion commences a row of long silky hairs, which gradually increase in width until they form a tuft at the end; fore legs short; feet small, with four well-developed toes, the rudiment of the thumb, which is armed with a nail—palms naked; hind legs and feet long, having five toes armed with nails; feet and toes coved with short, fine fur; soles naked; the fur longer on the back than on the belly—it is soft and silky.

Color.—Incisors yellow; the top of head and back dark yellowish-brown—lighter on the sides; fur at base light ash; throat, belly, vent, and fore legs, white; inner portions of hind legs white—the white commences at the nostrils, and forms a well-marked line to the thighs, extending to the heel, leaving the front of thigh white, outer portion light yellowish brown; feet white; under portion of tail white, above dark brown; the long hair on tail a rich brown; tip of nose flesh-color; the fur of nose and half of cheek white.

Dimensions.—	Total length from tip of nose to root of tail	$3\frac{6}{10}$	inches.
	Total length of vertebræ of tail	$3\frac{7}{10}$	"
	Total length of ear anterior	$\frac{3}{10}$	"
	Total length of whiskers	$1\frac{7}{10}$	

Total length of os calcis and middle toe, including nail	1	inch.
Total length from elbow to tip of nail	1	"
Distance from the anterior angle of orbit to the tip of nose	$\frac{6\frac{1}{2}}{10}$	"

Habitat.—New Mexico, west of Rio Grande.

Obs.—Of the habits of this animal I know but little. The specimen described is a male; I procured it in the San Francisco mountain, New Mexico.

Genus DIPODOMYS, Gray.

DIPODOMYS ORDII, Woodhouse.—Ord's Pouched Jumping Rat.

Dipodomys Ordii, Woodhouse. Proc. A. N. S., Phila., vol. 6.

CHAR. ESSENT.—Light reddish-brown above; beneath white; tail short, and pencillate at end.

Description.—A little smaller than the *D. Phillipsii*, Gray; head and tail shorter; nose long and pointed, extending some distance beyond the incisors; ears somewhat round, the anterior portion almost naked; posteriorly covered with short, fine hair.

Color.—Dark reddish-brown above; sides light reddish-brown; fur ash-color at base; side of the nose, half of the cheek, spot behind the ear, band across the thigh, and beneath, pure white; a black spot at the base of the long whiskers; a superciliary ridge of white over the eye; tail dark brown, with a band of white on either side; the pencillated portion of the tail is formed of long white hairs with bright brown tips.

Dimensions.—Total length from tip of nose to root of tail	5	inches.
Total length of vertebræ of tail	$4\frac{3}{10}$	"
Total length of tail, including hair at tip	$5\frac{6}{10}$	"
Total length of os calcis, including middle toe and nail	$1\frac{5}{10}$	"
Total length of ear	$\frac{4\frac{1}{2}}{10}$	"

Habitat.—Western Texas.

Obs.—This I procured whilst I was at El Paso, on the Rio Grande. I have named it in honor of Mr. George Ord, President of the Academy of Natural Sciences, Philadelphia.

Genus GEOMYS, Raf.

GEOMYS BURSARIUS, Shaw.—The Canada Pouched Rat.

Mus Bursarius, Shaw, Gen. Zool., vol. 2, p. 100, p. 138.

Mus bursarius, Shaw, Linnean Trans., vol. 5, p. 227, 1 p. 100.

Geomys cinereus, Raf. Amer. Month. Mag., 1817.

Pseudostoma bursarius, Aud. & Bach. Quad. N. A., vol. 1, p. 332, pl. 44.

The specimen in my collection is of a young animal, but I believe it to be of this species. It is abundant in some portions of the Indian territory.

GEOMYS FULVUS, Woodhouse.—The Red Sand Rat.

Geomys fulvus, Woodhouse, Proc. A. N. Sci., Phila., vol. 6, p. 201.

CHAR. ESSENT.—Light reddish-brown above; beneath whitish; ears small and round, covered with thick, short, black fur; tail long in proportion when compared with others of this genus.

Description.—Head large; nose broad, covered with thick, short fur, with the exception of a small space at tip and the margins of the nostrils, which are naked; the nose extends a short distance beyond the plane of the incisors; the incisors are exserted with three convex smooth sides, the exterior broadest, and of a yellowish color—their cutting edges are even; the upper incisors extend downwards and inwards—the under ones are one-third longer than the upper, and but slightly narrower; ears small and round, covered with thick, short black fur externally; eyes larger than is common in species of this genus; tail round, thick at base, and gradually tapering; the fore claws are long, compressed, slightly curved, and pointed; the claw on the middle toe is the longest, the fifth is the shortest, and that of the thumb resembles much the claw of the hind foot, both as regards size and shape. The toes on the hind feet are a little longer and more slender than those of the fore feet; the nails short, somewhat conical, and excavated underneath.

Color.—Head, cheeks, back, and sides, bright reddish-brown, being darker on the top of the head and back; the breast, ventral region, feet, inner portions of legs and thighs, white, slightly inclining to ash; abdomen very light reddish-brown; edges of cheek-pouches encircled with rufous. The long hair of the back extends over about one-third of the tail, the remaining portion of which is covered with short, white silky hairs, terminating in a small tuft. The fore feet above are covered with short white hair; the toes on their inner side have a row of long white hairs; palms naked; the claws are opaque, white for half their extent, the other half transparent—there is a small oblong reddish-brown spot in the centre of each. The hind feet are covered above with white hairs; soles naked. The lips on their inner side are covered with short, fine white hair, with a band of short, fine black fur encircling the mouth. Fur above at base dark ash, beneath light ash; whiskers silvery white.

Dimensions.—	Total length from the tip of the nose to root of tail.	5	inches
	Total length of tail vertebræ	$2\frac{3}{10}$	"
	Total length from anterior angle of eye to tip of nose	$\frac{7}{10}$	"
	Total length from tip of nose to auditory opening	$1\frac{1\frac{1}{2}}{10}$	"
	Total length of os calcis, including middle toe and claw	$1\frac{1}{10}$	"
	Total length from elbow to end of middle claw	$1\frac{5}{10}$	"
	Total length of middle fore claw	$\frac{4}{10}$	"
	Total length of hind claw	$\frac{2\frac{1}{2}}{10}$	"
	Total length of fur on back	$\frac{3\frac{1}{2}}{10}$	"
	Total length of whiskers, about	1	"

Habitat.—New Mexico, west of Rio Grande.

Obs.—The specimen in my collection was procured near the San Francisco mountain, about which they were quite abundant.

Genus SPERMOPHILUS, Cuv.

Spermophilus tridecemlineatus, Mitchell.—The 13-lined Spermophile.
Spermophilus tridecemlineatus, Mitchell, Med. Rep., 1821.
Arctomys tridecemlineatus, Godm. Nat. Hist., vol. 2, p. 112.
Arctomys (*Spermophilus*) *Hoodii*, Rich. F. Bor. Amer., vol. 2,p. 117, pl. 14.
Spermophilus tridecemlineatus, Aud. and Bach. Quad. N. A., v. 1, p. 117, pl. 39.

I have only observed this pretty little spermophile on the prairies of the Cherokee Nation.

Spermophilus ludovicianus, Ord.—The Prairie Dog.
Prairie dog, Lewis and Clark's Exp., vol. 1, p. 67.
Wishtonwish, Pike's Exp., p. 150.
Arctomys ludovicianus, Ord., in Guthrie's Geog., 2,302, 1815.
" " Say, Long's Exp., vol. 1, 451.
Arctomys Missouriensis, Warden, descr. des Etas-Unis, v. 5. p. 187.
Spermophilis ludovicianus, Aud. and Bach. Quad. N. A., vol. 2, p. 319, pl. 99.

This noisy spermophile is ever on the watch, and at the approach of danger commences its barking, if it might be called so, for it resembles much more the chirp of a large finch. Seated by the edge of its hole, it keeps up an incessant chirping, at the same time jerking its tail. On a nearer approach it disappears suddenly into its hole.

I have shot specimens frequently, but never secured more than one, on account of their falling into their holes, which are so deep that it is impossible to extricate them. I have taken the ramrod of my gun, and with it and my arm reached down one of them, and even then was not able to find the bottom.

These animals live in communities, or "dog-towns," as they are called by the trappers and people of the country. They are in many places quite extensive; one that we passed through in western Texas must have been thirty miles in extent. Many of these towns are apparently without water.

Their food appears to be principally grass and insects.

Their holes are generally situated at regular intervals apart, say from twenty to thirty feet.

I have not always found the owl (*Athene hypugæa*, Bonap.) and rattlesnake (*Crotalus*) with them. The former occupies the deserted burrows of this animal.

Their flesh is quite palatable.

Genus SCIURUS, Linn.

Sciurus Carolinensis, Gmel.—The Carolina Gray Squirrel.
Sciurus Carolinensis and *cinereus*, Gm. Schreb., tab. 313.
" " Aud. and Bach. Quad. N. A., vol. 1, p 55, pl. 7

Common in the Indian territory and Texas.

SCIURUS MACROUREUS, Say.—The Great-tailed Squirrel.

Sciurus macroureus, Say, Long's Exped., vol. 1, p. 115.
Sciurus magnicaudatus, Harlan, Fauna. Amer., p. 178.
Sciurus macroureus, Godman, Nat. Hist., vol. 2, p. 134.
Sciurus Sayii, Aud. and Bach. Quad. N. A., vol. 2, p. 247, pl. 79.

This beautiful squirrel is quite abundant in the timber-lands of the Arkansas river and its tributaries.

SCIURUS HUDSONICUS, Pennant —The Chicaree.

Sciurus Hudsonicus, Pennant, Arctic Zool., vol. 1, p. 116.
" " Sabine, Franklin's Journey, p 666.
" " Godman, Nat. Hist., vol. 2, p. 138.
" " Aud. and Bach. Quad. N. A., vol. 1, p. 125, pl. 14.

Common in the Indian territory.

SCIURUS ABERTII, Woodhouse.—Abert's Squirrel.

Sciurus dorsalis, Proc. Acad. N. Sci., Phila., vol. 6, p. 110.
Sciurus Abertii, Woodhouse, Proc. A. N. S., Phila., vol. 6.

CHAR. ESSENT.—About the size of *S. cinereus;* ears large and tufted; tail about as long as the body, very broad, gray above and white beneath; fur dense and soft—gray above, with a broad dorsal line of rich ferruginous brown; white beneath.

Description.—Head about the size of *S. capistratus*, and incisors rather broader and more prominent than in that species; ears broad and nearly round, covered on both surfaces with hair, very thick posteriorly; the ear is margined with long hairs, forming a tuft; whiskers numerous and long; fur long, dense, and very fine; tail long, broad, and flat; claws long, very strong, and much curved.

Color—Incisors yellowish-brown; general color above dark-gray, with the exception of the dorsal line and a band extending along the external base or hind part of the ear, which are of a rich ferruginous brown; beneath white, with the exception of the perineum, which is gray. There is on either side a black line dividing the gray and white; cheeks grayish-white; tail gray above, with a broad white margin, and white beneath; fur cinereous at base; the long hairs forming the tuft on the margin of the ear are of a black-gray; feet light-gray, inclining to white; nails black; whiskers black; iris dark-brown.

Dimensions.—Total length from tip of nose to root of tail	13	inches.
Total length of tail vertebræ, about	8	"
Total length of tail to end of hair	11	"
Total length of os calcis to point of longest nail	$2\frac{8}{10}$	"
Height of ear anteriorly	$1\frac{3}{10}$	"
Height of ear anteriorly to end of hair at tip	$2\frac{8}{10}$	"
Breadth of ear, about	1	"
From ear to point of nose, about	$1\frac{7}{10}$	"

Habitat.—New Mexico, west of Rio Grande.

Obs.—This truly elegant squirrel I procured in the San Francisco mountain, during the month of October, where I found it quite abundant, and after leaving which place I did not see it again.

I have been informed lately by Major Backus, U. S. Army, that they are quite numerous near Fort Defiance, in the Navajoe country.

When I first described this animal in the Academy's proceedings, last June, I called it the *Sciurus dorsalis*, since when I have found that the specific name of *dorsalis* has been occupied by J. E. Gray for one of the same genus. In the Academy's proceedings of December I have called it *Sciurus Abertii*, in honor of Col. J. J. Abert, Chief of the Corps of Topographical Engineers, to whose exertions science is so much indebted.

Genus HYSTRIX, Linn.

HYSTRIX PILOSUS, Catesby.—The Canada Porcupine.
Hystrix pilosus Americanus, Catesby, Carol. App., p. 30, An. 1741.
Hystrix dorsata, Linn, Syst., p. 57, An. 1757.
Hystrix pilosus, Rich. F. Bor. Amer., p. 214.
Hystrix dorsata, Godman, Nat. Hist., vol. 2, p. 160.
" " Aud. and Bach. Quad. N. A., vol. 1, 277, pl. 36.

I have met with this animal but once, and that was on the Little Colorado river, New Mexico.

Genus LEPUS, Linn.

LEPUS SYLVATICUS, Bachman.—The Gray Rabbit.
Lepus Americanus, Harlan, Fauna Amer., p. 193.
" " Godman, Nat. Hist., vol. 2, p. 157.
Lepus sylvaticus, Bach. Jour. A. N. Sci., Phila., v. 7, pt. 2, p. 403.
" " Aud. and Bach. Quad. N. A., vol. 1, p. 173, pl. 22.

Very common in eastern Texas and the Indian territory.

LEPUS ARTEMISIA, Bach.—The Wormwood or Artemisia Hare.
Lepus artemisia, Bach. Jour. A. N. Sci., Phila., vol. 8, p. 94.
" " Aud. and Bach. Quad. N. A., vol. 2, p. 272, pl. 88.

This beautiful little hare was found quite abundant in western Texas, particularly in the valley of the Rio Grande, along which stream I observed it as far as we went. Its haunts were along the barrens, among the bushes *Lugonichia* and *Larrea Mexicana*.

LEPUS CALLOTIS, Wagler.—The Black-tailed Hare.
Lepus callotis, Wagler, 1832.
Lepus nigricaudatus, Bennet, Proc. Zool. Sc. Lond., 1833, p. 41.
" " Bachm. Jour. A. N. S., Phila., vol. 8, p. 84, An. 1839.
Lepus callotis, Aud. and Bach. Quad. N. A., vol. 2, p. 95, pl. 63.

This large and swift hare is known to the Texans as the "jackass rabbit," owing to the length of its ears. I first observed it on the Red Fork of the Arkansas, and from there south it is quite abundant; also in Texas and New Mexico, extending its range to California. Its favorite haunts are in the barren districts among the *Lugonichia*.

It is very shy, and it is with the greatest difficulty that a person can get within gun-shot of it. On being disturbed, it immediately starts and disappears with great rapidity.

Genus DYCOTYLES, Shaw.

DYCOTYLES TORQUATUS, Cuv.—The Collared Peccary.
Sus tajassu, Linn, 12 edit., vol. 1, p. 103.
Aper Americanus, Briss. Regne. An., p. 3.
Porcus Moschiferus, Klein. Quad., p. 25.
Dycotyles torquatus, F. Cuv. Dict. des. Sc. Nat., tom. 9, p. 518.
" " Aud. and Bach. Quad. N. A., vol. 1, p. 233, pl. 31.

This animal, known in Texas as the wild hog, is found on the Canadian river, in the Indian territory, and from there south becomes quite abundant in Texas. It is most numerous near the streams. The flesh is palatable at some seasons of the year; but it is necessary, immediately upon its being killed, to remove the gland from off the back, which emits a disagreeable odor, which is imparted to the flesh if great care is not observed.

Genus CERVUS, Linn.

CERVUS MACROTIS, Say.—The Black-tailed or Mule Deer.
Cervus macrotis, Say, Long's Exp., vol. 2, p. 254.
" " Sabine, Franklin's Journey, p. 667.
" " Godman, Nat. Hist., vol. 2, p. 305.
" " Aud. and Bach. Quad. N. A., vol. 2, p. 206, pl. 78.

Common in western Texas and New Mexico, extending to California.

CERVUS VIRGINIANUS, Pennant.—The common American Deer.
Cervus Virginianus, Penn. Syn., p. 51, Quad., vol. 1, p. 104.
" " Harlan, Fauna Amer., p. 239.
" " Godman, Nat. Hist., vol. 2, p. 306.
" " Aud. and Bach. Quad. N. A., vol. 1, p. 220, pl. 81.

Very common throughout the Indian territory. In eastern Texas I have seen large herds of these animals of over one hundred in number.

Genus ELAPHUS, Griffith.

Elaphus Canadensis, Ray.—The American Elk.
Cervus Canadensis, Ray, Syn. Quad., p. 84.
Cervus Strongyloceros, Schreber Saugt., vol. 2, p. 1074, pl. 247, fig. G.
Cervus Canadensis, Godman, Nat. Hist., vol. 2, 294.
Elaphus Canadensis, Aud. and Bach. Quad. N. A., vol. 2, p. 84, pl. 62.

I have only observed this animal in the Indian territory, but it extends its range into Texas, New Mexico, and California.

Genus ANTILOCAPRA, Ord.

Antilocapra Americana, Ord.—The Prong-horned Antelope.
Antilope Americana, Ord, Guthrie's Geog., 1815.
Cervus hamatus, Blainville, Nouv. Ball. Soc., 1816.
Antilocapra Americana, Ord, Jour. de Phys., p. 80, 1818.
Antilope furcifer, Ham. Smith, Linn. Trans., vol. 13, pl. 2, An. 1823.
Antilope palmata, Smith, Grif. Cuv., vol. 5, p. 323.
Antilope Americana, Godman, Nat. Hist., vol. 2, p. 321.
Antilocapra Americana, Aud. and Bach., vol. 2, p. 193, pl. 77

This beautiful little animal our party frequently saw, and always with admiration for its gracefulness. Often, as we passed along our route, considerable numbers of this species would gallop around us, or stop and cautiously approach, apparently induced by curiosity and eagerness to examine such an unusual appearance; but on our coming near they would set off at full speed.

This singular curiosity is taken advantage of by the hunters to decoy them, which I have seen done by attaching a red handkerchief to a stick. The hunter then creeps through the grass cautiously, and waving the handkerchief above his head, generally succeeds in getting within the reach of his rifle; the little animal in the mean time being intent on watching his signal, or even in coming towards him.

It is exceedingly abundant in western Texas, New Mexico, and California.

Genus OVIS, Linn.

Ovis montana, Desm.—The Rocky Mountain Sheep.
Big Horn of Lewis and Clark, vol. 1, p. 144.
Mouflon d'Amerique, Desm. Mam., p. 487
Ovis ammon, Harlan, Fauna Amer., p. 259.
" " Godman, Nat. Hist., vol. 2, p. 329.
Ovis montana, Aud. and Bach. Quad. N. A., vol. 2, p. 163, pl. 73.

Found in the mountainous districts of New Mexico, and in California.

Genus BISON, Pliny.

Bison Americanus, Gmel.—The American Bison, or Buffalo.

Taurus Mexicanus, Hernandez, Mex., p. 587, Male, 1651.
Taureau sauvage, Hennepin, Nov. Discov., vol. 1, p. 186, 1699.
The buffalo, Lawson's Carolina, p. 115.
" " Long's Exp., vol. 3, p. 68.
Bos Americanus, Linn, S. N., ed. Gmel. 1, p. 204.
" " Godman, Nat. Hist., vol. 3, p. 4.
" " Richardson, Fauna B., p. 79.
Bison Americanus, Aud. and Bach. Quad. N. A., vol. 2, p. 32, pl. 61, 62.

This noble animal, which is one of the most important of our North American quadrupeds—which is almost the sole dependence of the western prairie Indians, not only as an article of food, but also for clothing and other conveniences of life—is from year to year fast diminishing in numbers, and its range, once so extensive, is now quite limited.

In the year 1850, whilst I was attached to the Creek boundary survey, commanded by Lieut. J. C. Woodruff, Topographical Engineers, U. S. Army, we first met with these animals about sixty miles west of the Arkansas river and north of the Red Fork. The first we saw were a few old bulls; but after travelling one more day, we came among herds, which continued to increase in numbers constantly until we arrived at the crossing of the North Fork of the Canadian, where they were very numerous. In the spring of the year, I was told that they are found within twenty miles of the point where we crossed the Arkansas. I saw the sign of their having been there that spring.

Their trails were abundant, and looked old, as if they had been used for years during their migrations, and were running parallel to each other; but their general direction was north and south.

On our route across Texas none of these animals were seen, nor was there a sign of their having been there for many years, with the exception of the crossing of Live Oak creek, where they had evidently been a few years previously; here were some of their bones. In all probability they followed down the Pecos river.

They are now only known in northern Texas, and come occasionally within twenty miles of Fredericksburg.

I have seen a few of these animals tamed in the Creek nation, running with the common cattle.

BIRDS.

BY S. W. WOODHOUSE, M. D.

Genus CATHARTES, Illiger.

Cathartes Californianus, Shaw.—The Californian Vulture.
Cathartes Californicus, Aud. Birds of Amer., 8 vo., vol. 1, p. 12, pl. 1.
Vultur Californianus, Shaw, Nat. Misc., vol. 9, pl. 301.
Cathartes vulturinus, Tem. Pl. Col., 51.

But two of these very large vultures came under my observation; they were in the vicinity of San Jose, California.

It appears to be more solitary and shy in its habits than the *C. aura* and *C. fœtens*.

Cathartes aura, Linn.—The Red-headed Turkey Vulture.
Vultur aura, Wils. Amer. Orn., vol. 9, p. 96.
Cathartes aura, Aud. Birds of Amer., 8 vo., vol. 1, p. 15, pl. 2.

This species abounds throughout the south and west wherever I have been; but between the Rio Grande and Colorado it was quite scarce.

Cathartes atratus, Wils.—The Black Vulture, or Carrion Crow.
Vultur atratus, Wils. Amer. Orn., vol. 9, p. 104.
Cathartes iota, Bonap. Syn., p. 23.
Cathartes atratus, Aud., 8 vo., vol. 1, pl. 3, p. 17.

The carrion crow and turkey-buzzard are mostly found in company. In San Antonio, and in the different towns in Texas, they are quite domestic, lighting on the house-tops and walking about the streets picking up the offal, and are seldom molested. They are quite abundant thoughout the countries occupied by the Creek and Cherokee Nations, and in New Mexico. In the latter country they were more scarce, but I observed great numbers in the buffalo country, following herds of that animal.

Genus POLYBORUS, Vieill.

Polyborus Braziliensis, Gmel.—The Brazilian Caracara.
Polyborus vulgaris, Vieill, Gal. des Ois, t. 7, Spix. Av. Bras., t. 3.
Falco cheriway, Jacq.
Polyborus vulgaris, Aud. Birds of Amer., 8 vo., vol. 1, pl. 4, p. 21.

Whilst encamped on the Rio Salado, near San Antonio, Texas, I frequently observed that this bird generally associated with the vultures, which birds they much resemble in their habits, excepting that they are more shy. I have, however, approached within a few yards of them whilst on horseback.

Genus BUTEO, Cuv.

BUTEO BOREALIS, Gmel.—The Red-tailed Buzzard.
Falco borealis, Wils. Amer. Orn., vol. 6, p. 76. Adult.
Falco leverianus, Wils. Amer. Orn., vol. 6, p. 78. Young.
Buteo borealis, Aud. Birds of Amer., 8 vo., vol. 1, pl. 7, p. 32.
Accipiter ruficaudatus, Vieill.

This beautiful but shy bird I have found abundant from the Gulf of Mexico to the Pacific ocean.

BUTEO LINEATUS, Gmel.—Red-breasted Buzzard.
Falco lineatus, Wils. Amer. Orn., vol 6, p. 86. Adult.
Falco hyemalis, Wils. Amer. Orn., vol. 6, p. 73. Young.
Falco buteoides, Nutt.
Buteo lineatus, Aud. Birds of Amer., 8 vo., vol. 1, p. 9, p. 40.

This noisy bird I found dispersed all over the country south and west, and was particularly abundant in the Creek and Cherokee Nations. I have in my collection quite interesting series of these birds, in various stages of plumage, showing the change that takes place between the young and old birds.

Genus PANDION, Sav.

PANDION HALIÆTUS, Linn.—The Fish Hawk, or Osprey.
Falco Haliætus, Wils. Amer. Orn., vol. 5, pl. 3.
Falco Carolinensis, Gmel. Catsby's Carol., pl. 2.
Pandion Haliætus, Aud. Birds of Amer., 8 vo., vol. 1, pl. 15, p. 64.

Common along the coasts of Texas and California.

Genus HALLÆTUS, Sav.

HALLÆTUS LEUCOCEPHALUS, Linn.—The White-headed or Bald Eagle.
Falco ossifragus, Wils. Amer. Orn., vol. 7, p. 16. Young.
Falco haliætus, Wils. Amer. Orn., vol. 4. p. 89. Adult.
Falco pygargus, Daud.
Haliætus leucocephalus, Aud. Birds of Amer., 8 vo., vol. 1, pl. 14, p. 57.

This bird I have never observed very abundant, but saw it occasionally from the Gulf of Mexico to the Pacific ocean. The feathers of the eagles are prized highly by the Indians. Among the Pueblo Indians, particularly those of Zuñi, I have seen numbers of these birds caged, kept, I believe, for the purpose of procuring their feathers.

Genus FALCO, Linn.

FALCO PEREGRINUS, Linn.—Peregrine Falcon.
Falco peregrinus, Linn, pl. enl. 430, 421, 470, 469. Pall. Zoogr., t. 4, 5.
" " Wils. Amer. Orn., vol. 9, p. 120.
" " Aud. Birds of Amer., 8 vo., vol. 1, pl. 20, p. 84.
Falco barbatus, Linn.
Falco abietinus, Bechst.

This beautiful falcon is rare. The specimen in my collection was procured in the Creek country.

Genus HYPOTRIORCHIS, Boie.

HYPOTRIORCHIS COLUMBARIUS, Linn.—The Pigeon Hawk.
Falco Columbarius.—Wils. Amer. Orn., vol. 2, p. 107.
Falco temerarius, Nutt, Man., vol. 1, p. 61. Adult male.
Falco Aesalon, Swains. and Rich. F. Bor. Amer., vol. 2, p. 37.
Falco Columbarius, Aud. Birds of Amer., 8 vo., vol. 1, pl. 21, p. 88.

Common throughout the Indian territory, Texas, and New Mexico; more particularly in the timber lands about streams.

Genus TINNUNCULUS, Vieill.

TINNUNCULUS SPARVERIUS, Linn.—The Sparrow Hawk.
Falco sparverius, Wils. Amer. Orn., vol. 2, p. 117.
Falco gracilis and *F. isabellinus*, Swains.
Falco sparverius, Aud. Birds of Amer., 8 vo., vol. 1, pl. 22, p. 90.

This familiar little falcon is distributed throughout the Indian territory, Texas New Mexico, and California; but it is most abundant in the two former countries.

Genus NAUCLERUS, Vigors.

NAUCLERUS FURCATUS, Linn.—The Swallow-tailed Kite.
Falco furcatus, Wils. Amer. Orn., vol. 6, p. 70.
Nauclerus furcatus, Aud. Birds of Amer., 8 vo., vol. 1, pl. 18.

Common in Texas and in the Creek and Cherokee Nations. It appears to have a fondness for frequenting streams; along the Arkansas and its tributaries it was very abundant.

Genus ICTINIA, Vieill.

ICTINIA PLUMBEA, Lath.—The Mississippi Ictinia, or Kite.
Falco Mississippiensis, Wils. Amer. Orn., vol. 3, p. 80.
Falco plumbeus, Bonap. Syn., p. 90.
Milvus cenchris, Vieill, Ois d'Amer., Sept. t. 10; Spix. Av. Bras., t. 8.
Ictinia plumbea, Aud. Birds of Amer., 8 vo., vol. 1, pl. 17.

In eastern Texas and in the Indian territory I found this bird exceedingly abundant, more particularly on the Arkansas river and its tributaries. The stomachs of those which I examined were filled with insects, principally locusts, (*Cicadæ*.)

Genus ACCIPITER, Briss.

ACCIPITER FUSCUS, Gmel.—The Sharpshin Hawk.
Falco Pennsylvanicus, Wils. Amer. Orn., vol. 6, p. 13. Adult.
Falco velox, Wils. Amer. Orn., vol. 6, p. 186. Young female.
Accipiter Pennsylvanicus, Swains. and Rich. F. Bor. Amer., vol. 2, p. 44.
Astur fuscus, Aud. Birds of Amer., 8 vo., vol. 1, pl. 25, p. 100.

This bird I have frequently observed skimming over the prairies whilst in search of its prey. Its flight is so peculiar that there is not much chance of mistaking it, when taken in connexion with its form, short wings, and long tail, being very swift and irregular in its flight—first high in the air, then close to the ground, suddenly disappearing among the grass, having seized the object it was pursuing.

Very common throughout the Indian territory, Texas, and some portions of New Mexico.

Genus CIRCUS, Lacep.

CIRCUS CYANEUS, Linn.—The Marsh Hawk, or Hen Harrier.
Falco uliginosus, Wils. Amer. Orn., vol. vi, p. 67. Young female.
Falco Hudsonicus, Linn, Vieill Ois d'Amer. Sept., t. 9, Bonap. Amer. Orn., pl. 12.
Falco strigiceps, Wils.
Falco cyaneus, Bonap. Amer. Orn., vol. 2, p. 30.
Buteo (*Circus*) *cyaneus? var.? Americanus*, Swains' and Rich. F. Bor. Amer., vol. 2, p. 55.
Circus cyaneus, Aud. Birds of Amer., 8 vo., vol. 1, pl. 26, p. 105.

This species I have met with abundantly from the Mississippi river to the Pacific ocean, and throughout the summer, showing conclusively that it breeds in these different sections of country, although I have not been so fortunate as to find its nest.

Genus ATHENE, Boie.

Athene hypugæa, Bonap.—The Burrowing Owl.
Strix cunicularia, Say, in Long's Exp., vol. 1, p. 200.
" " Bonap. Amer. Orn., vol. 5, p. 68; note, p. 72, suggests the name of *Strix hypugæa*.
Surnia cunicularia, Aud. Orn., 8 vo., vol. 1, pl. 31, p. 119.
Athene socialis, Gamb. Proc. A. N. Sci., Phila., vol. 3, p. 47.

This bird I have found abundantly west of the Arkansas river; in western Texas and New Mexico, east of the Rio Grande, west of which I have never seen it; residing mostly in the forsaken burrows of the prairie-dog, *Spermophilis ludovicianus*. However, I have frequently found them both by themselves—the marmots being where there was apparently no water to be found. The owls, on the contrary, are always in the vicinity of water. I have frequently found them in villages by themselves. They are mostly to be seen standing on the little hillock of earth by the edge of the burrows; then, again, with nothing but their heads sticking above ground. On being approached, they commence chatting and bowing, presenting quite a ludicrous appearance. On a nearer approach they either disappear into their burrows or skim over the plain for some distance, alighting at the entrance of another burrow, where they again commence their chattering.

Genus BUBO, Sibbald.

Bubo Virginianus, Gmel.—The Great Horned Owl.
Strix Virginiana, Wils. Amer. Orn., vol. 6, p. 52.
Bubo pinicola, Vieill, Ois d'Amer. Sept., t. 19.
Bubo arcticus, Rich. and Swains. F. Bor. Amer., pl. 30.
Bubo Virginianus, Aud. Birds of Amer., 8 vo., vol. 1, pl. 39, p. 143.

This powerful and spirited species I did not find abundant, having seen but few of them in the Creek and Cherokee country; most abundant in the timber lands of the Arkansas river and its tributaries; also in Texas.

Genus EPHIALTES, Keyserling and Blasius.

Ephialtes asio, Linn.—The little Screech Owl.
Strix asio, Linn, Syst. Nat., 1, p. 132.
" " Wils. Amer. Orn., vol. 5, p. 83.
Strix nævia, Gmel. Wils. Amer, Orn., vol. 3, p. 16. Adult.
Bubo asio, Aud. Birds of Amer., 8 vo., vol. 1, pl. 40, p. 147.
Scops Carolinensis, Briss. Vieill. Ois d'Amer. Sept., t. 21.

This beautiful and noisy little horned owl was very abundant in the Indian territory, being always found in the vicinity of timber. I did not find it common in Texas.

Genus SYRNIUM, Savigny.

Syrnium nebulosum, Gmel.—The Barred Owl.
Strix nebulosa, Gmel, Syst. Nat., 6, p. 291.
Strix Fernandica, Shaw, Gen. Zool.
Strix nebulosa, Wils. Amer. Orn., vol. vi, p. 61.
Syrnium nebulosum, Aud. Birds of Amer., 8 vo., vol. 1, pl. 36, p. 132.

The barred owl I have found very abundant in the timbered lands bordering the various streams in the Indian territory, Texas, and New Mexico. It is easily recognised by its peculiar laughing hoot.

Genus CAPRIMULGUS, Linn.

Caprimulgus Carolinensis, Briss.—Chuck-will's-widow.
Caprimulgus Carolinensis, Wils. Amer. Orn., vol. 6, p. 95.
Caprimulgus rufus, Vieill, Ois d'Amer. Sept., t. 23.
Caprimulgus Carolinensis, Aud. Birds of Amer., 8 vo., vol. 1, pl. 41, p. 51.

Common in the Creek and Cherokee country, extending into Texas and New Mexico.

Caprimulgus Nuttallii, Aud.—Nuttall's Whip-poor-will.
Caprimulgus Nuttallii, Aud. Birds of Amer., vol. 7, pl. 495, p. 350.

As we passed down the Little Colorado river, New Mexico, I found this bird quite abundant; also in the San Francisco mountain, near the same river. There are in the collection made by me males and females of this species, the plumage of which is the same.

Genus CHORDEILES, Swains.

Chordeiles Virginianus, Briss.—The Night Hawk.
Caprimulgus Americanus, Wils. Amer. Orn., vol. 5, p. 65.
Caprimulgus popetue, Vieill. Ois d'Amer. Sept., t. 24.
Chordeiles Virginianus, Aud. Birds of Amer., 8 vo., vol. 1, pl. 43, p. 159.

This bird I have found throughout the south and west, from the Mississippi river to the Pacific ocean, and quite abundant.

Genus ACANTHYLIS, Boie.

Acanthylis pelasgia, Linn.—The American Swift, or Spine-tail.
Hirundo pelasgia, Wils. Amer. Orn., vol. 5, p. 48.
Chætura pelasgia, Aud. Birds of Amer., 8 vo., vol. 1, pl. 44, p. 164.

Very common throughout the Indian territory, Texas, New Mexico, and California.

Acanthylis saxatalis, Woodhouse.—The Rock Swift, or Spine-tail.

Head and rump white; back, tail, wings, and sides black, beneath white; upper tail-coverts black; under coverts white. About the size of *A. pelasgia*, and in its mode of flight the same.

This beautiful swift I saw whilst encamped at Inscription Rock, New Mexico. Being on the top of this high rock at the time without my gun, I was unable to procure specimens. I had a fair view of the birds at this time, as they flew close to me. I descended immediately and procured my gun; but the birds by this time flew too high for me to be able to procure a shot at them. They were breeding in the crevices of the rocks. I was still in hopes of seeing them again along our route, but I had not this pleasure, it being the only place that I have observed them.

Genus HIRUNDO, Linn.

Hirundo thalassina, Swains.—Violet Green Swallow.

Hirundo thalassina, Swains. Syn. of Mex. Birds, Phil. Mag. for 1827, p. 365.
" " Aud. Birds of Amer., vol. 1, pl. 49, p. 186.

This beautiful species I found most abundant in New Mexico, west of the Rio Grande.

Hirundo lunifrons, Say.—The Republican or Cliff Swallow.

Hirundo lunifrons, Say, in Long's Exp., vol. 2, p. 47.
Hirundo fulva, Bonap. Amer. Orn., vol. 1, p. 63.
" " Aud. Birds of Amer., 8 vo., vol. 1, pl. 47, p. 177.

This species is very common throughout the Indian territory, Texas, New Mexico, and California. Whilst at Fort Gibson, on the Neosho river, in the spring of 1850, I was much amused by the perseverance of these birds. They had taken possession of a shed in front of the adjutant's office to build their nests. The continual noise and dirt made by them rendered them rather annoying, and their nests were all destroyed; but they commenced rebuilding them immediately, and they were destroyed a number of times before they could be got rid of entirely.

Hirundo rufa, Vieill.—The Barn Swallow.

Hirundo rufa, Vieill, Ois d'Amer. Sept., 1, t. 60.
Hirundo Americana, Wils. Amer. Orn., vol. 5, p. 34.
" " Swains' and Rich. F. Bor. Amer., vol. 2, p. 329.
Hirundo rustica, Aud. Birds of Amer., 8 vo., vol. 1, pl. 48, p. 181.

This species is common throughout some portions of the Indian territory, Texas, and New Mexico; in the vicinity of Santa Fé quite abundant. I have found this and the *H. lunifrons* flying about together, pursuing their food, whilst on the prairies north of the Red Fork of the Arkansas river.

Hirundo bicolor, Vieill.—The White-bellied Swallow.
Hirundo viridis, Wils. Amer. Orn., vol. 3, p. 44.
Hirundo bicolor, Vieill. Ois d'Amer. Sept., 1, t. 31.
" " Aud. Birds of Amer., 8 vo., vol. 1, pl. 46, p. 175.

Found throughout the Indian territory, Texas, New Mexico, and California

Genus PROGNE, Boie.

Progne purpurea, Linn.—The Purple Martin.
Hirundo cerulea, Vieill. Ois. d'Amer. Sept., t. 26, 27.
Hirundo purpurea, Wils. Amer. Orn., vol. 1, p. 58.
" " Aud. Birds of Amer., 8 vo., vol. 1, pl. 45, p. 170.

Common in the Indian territory and Texas.

Genus COTYLE, Boie.

Cotyle riparia, Linn.—The Bank or Sand Swallow.
Hirundo riparia, Wils. Amer. Orn., vol. 5, p. 46.
" " Aud. Orn., 8 vo., vol. 1, pl. 50, p. 187.

Common in the Indian territory, and in some parts of New Mexico.

Genus CERYLE, Boie.

Ceryle alcyon, Linn.—The Belted King Fisher.
Alcedo alcyon, Wils. Amer. Orn., vol. 3, p. 59.
" " Aud. Birds of Amer., vol. 4, pl. 255, p. 205

Very common in the Indian territory and Texas. In New Mexico and California it is not quite so abundant.

Ceryle Americana, Gmel.—The American King Fisher.
Alcedo Americana, Gmel. pl. enl. 591.
Alcedo viridis, Vieill, Azara, No. 421.

Abundant in Texas, along some of the tributaries of the Rio Grande

Genus MELLISUGA, Briss

Mellisuga colubris, Linn.—The Ruby-throated Humming Bird.
Trochilus colubris, Wils. Amer. Orn., vol. 2, p. 46.
" " Aud. Birds of Amer., 8 vo., vol. 4, pl. 253, p. 190.

Very abundant throughout the Indian territory and Texas.

Genus POLYTMUS, Boie.

POLYTMUS RUFUS, Less.—The Nootka Humming Bird.

Polytmus rufus, Less. Rev. Zool. 1840, p. 73.
Trochilus rufus, Gmel. Syst. Nat., vol. 1, p. 497.
Trochilus (*Selasphorus*) *rufus*, Swains. and Rich. F. B. Amer., vol. 2, p. 324
Selasphorus rufus, Aud. Birds of Amer., 8 vo., vol. 4, pl. 234, p. 200.

This charming little bird I found abundant in New Mexico, particularly in the vicinity of Santa Fé. Numbers of them were to be seen daily in front of our quarters, where they came to feed among the flowers of the *Cleome integrifolia*, *T.* and *G.*, which grows in great abundance about this town and throughout New Mexico, and affords them their favorite object of food. For such a small bird it makes a great noise, and the male birds appear to be quite quarrelsome and pugnacious.

Genus CERTHIA, Linn.

CERTHIA FAMILIARIS, Linn.—The Brown Tree Creeper.

Certhia familiaris, Wils. Amer. Orn., vol. 1, p. 122.
" " Aud. Birds of Amer., vol. 2, p. 109.
Certhia Americana, Bonap.

Generally distributed throughout the Indian territory, Texas, New Mexico, and California. I found it very abundant in the San Francisco mountain, New Mexico.

Genus SITTA, Linn.

SITTA CAROLINENSIS, Lath.—The Carolina Nuthatch.

Sitta Carolinensis, Wils. Amer. Orn., vol. 1, p. 10.
" " Aud. Orn., 8 vo., vol. 4, pl. 247, p. 175.
Sitta melanocephala, Vieill, Gal. des Ois, t. 171.

Common from the Gulf of Mexico to the Pacific ocean.

SITTA PYGMEA, Vigors.—The California Nuthatch.

Sitta pygmea, Vigors, Zool. Beechy's Voy., p. 25, pl. 4, fig. 2.
" " Aud. Birds of Amer., 8 vo., vol. 4, pl. 250, p. 184.

I found these birds abundant, feeding in the pines of the San Francisco mountain, New Mexico. At no other place did I observe them.

Genus TROGLODYTES, Vieill.

TROGLODYTES OBSOLETUS, Say.—The Rock Wren.

Troglodytes obsoletus, Say, Long's Exp.
" " Aud. Birds of Amer., 8 vo., vol. 2, pl. 116, p. 113.

The only place where this bird has come under my observation was about the San Francisco mountain, New Mexico.

TROGLODYTES LUDOVICIANUS, Lath.—The Great Carolina Mocking Wren.

Troglodytes ludovicianus, Licht. pl. enl., 730, fig. 3.
" " Aud. Birds of Amer., 8 vo., vol. 2, pl. 117, p. 116.
Certhia Carolinensis, Wils. Amer. Orn., vol. 2, p. 61.

Common throughout Texas and the Indian territory.

TROGLODYTES BEWICKII, Aud.—Bewick's Wren.

Troglodytes Bewickii, Aud. Birds of Amer., vol. 2, pl. 118, p. 120.

Abundant in the Indian territory, particularly in the timber, keeping about the rocks, old logs, and bushes. It is continually in motion, jumping about, and uttering at the same time the usual scold of the wrens when approached.

TROGLODYTES ÆDON, Vieill.—The House Wren.

Troglodytes ædon, Vieill. Ois d'Amer., t. 107.
" " Aud. Birds of Amer., vol. 2, pl. 120, p. 125.
Sylvia domestica, Wils. Amer. Orn., vol. 1, p. 129.

Common throughout the Indian territory and Texas.

Genus REGULUS, Cuv.

REGULUS SATRAPA, Licht.—The Gold-crested Kinglet.

Sylvia regulus, Wils. Amer. Orn., vol. 1, p. 126.
Regulus rubineus, Vieill, Ois d'Amer. Sept., t. 104, 105.
Regulus tricolor, Nutt. Man., vol 1, p. 420.
Regulus satrapa, Aud. Birds of Amer., 8 vo., vol. 2, pl. 132, p. 165.

This active little bird I found abundant, associated in company with the titmice, nuthatches, and creepers; always lively, pursuing small insects. Common in the Indian territory, Texas, and New Mexico.

REGULUS CALENDULA, Linn.—The Ruby-crowned Kinglet.

Sylvia calendula, Nutt. Man., vol. 1, p. 155.
Regulus calendula, Bonap. Syn., p. 91.
" " Aud. Birds of Amer., 8 vo., vol. 2, pl. 133, p. 168.

Very abundant in Texas, New Mexico, and the Indian territory.

Genus CULICIVORA, Swains.

CULICIVORA CŒRULA, Gmel.—The Blue-gray Gnat-catcher.

Motacilla cana, Gmel.
Muscicapa cœrulea, Wils. Amer. Orn., vol. 2, p. 164.
Culicivora cœrulea, Aud. Birds of Amer., 8 vo., vol. 1, pl. 70, p. 244.

This industrious little gnat-catcher I found abundant throughout Texas and the Indian territory, particularly among the thickets bordering on streams. It was always to be recognised by its well-known note.

Genus SIALIA, Swains.

SIALIA WILSONII, Swains.—The common Blue Bird.
Motacilla sialis, Linn.
Sylvia sialis, Wils. Amer. Orn., vol. 1, p. 56.
Saxicola sialis, Bonap. Syn., p. 39.
Ampelis sialis, Nutt. Man., vol. 1, p. 444.
Erythaca (*Sialia*) *Wilsonii*, Swains. and Rich. F. Bor. Amer., vol. 2, p. 210.
Sialia Wilsonii, Aud. Birds of Amer., 8 vo., vol. 2, pl. 134, p. 171.

This interesting bird I found common in the Indian territory and Texas.

SIALIA OCCIDENTALIS, Towns.—The Western Blue Bird.
Sialia occidentalis, Towns. Jour. A. N. S., Phila., v. 7, p. 188.
" " Aud. Orn., 8 vo., vol. 2, pl. 135, p. 176.

This bird, which was discovered by my friend, Doctor J. K. Townsend, resembles much in its habits our common kind. I found it excessively abundant in New Mexico; also common in California.

SIALIA ARCTICA, Swains.—The Arctic Blue Bird.
Erythaca (*sialia*) *arctica*, Swains. and Rich. F. B. Amer., vol. 2, p. 209.
Sialia arctica, Nutt. Man., vol. 2, p. 573.
" " Aud. Birds of Amer., 8 vo., vol. 2, pl. 136, p. 178.

These birds, I observed, were quite common about Santa Fé, where they breed about the houses in boxes put up by the inhabitants for that purpose.

Genus PARUS, Linn.

PARUS ATRICAPILLUS, Linn.—The Black-capped Tit, or Chicadee.
Parus atricapillus, Briss. Orn., 3, t. 29, fig. 1.
" " Wils. Amer. Orn., vol. 1, p. 124.
" " Aud. Birds of Amer., 8 vo., vol. 2, pl. 126, p. 146.

Common in the Indian territory.

PARUS MONTANUS, Gamb.—The Rocky Mountain Chicadee.
Parus montanus, Gamb., Proc. Acad. Nat. Sc., Phila., vol. 1, p. 259.

This species, discovered by my friend Doctor Gambel, I found quite abundant in the San Francisco mountain, New Mexico. It was feeding among the tall pines, in company with the other chicadees, and the *Regulus calendula* and *satrapa*.

Genus LOPHOPHANES, Kaup.

LOPHOPHANES BICOLOR, Linn.—The Great Crested Chicadee.
Parus bicolor, Wils. Amer. Orn., vol. 1, p. 137.
" " Aud. Birds of Amer., 8 vo., vol. 2, pl. 125, p. 143.

Common in the Indian territory.

Lophophanes inornatus, Gamb.—The Plain Chicadee.
Parus inornatus, Gamb. Proc. A. N. Sc., Phila., 1845, p. 265.
" " Gamb. Jour. A. N. Sc., Phila.

The plain chicadee I observed for the first time in the San Francisco mountain, near the Little Colorado river, New Mexico, where it was quite abundant, feeding among the tall pines, in company with the *Sitta pygmæa*, *S. Carolinensis*, and *Parus montanus*.

Lophophanes atricristatus, Cassin.—The Black Crested Chicadee.
Parus atricristatus, Cassin, Proc, Acad. N. S., Phila., vol. 5, p. 103.
" " Cassin, Birds of Cal. and Texas, vol. 1, pl. 3.

Whilst encamped on the Rio Salado, Texas, near San Antonio, in the spring of 1851, I observed this beautiful chicadee busily engaged feeding among the trees on the bank of the stream. Like the rest of its family, it was always in motion, and very noisy. At our camp at Quihi, on the eighth of May, I found these birds very abundant, feeding among the oaks. The young males, which then were full grown, much resemble the females, the latter wanting the black crest.

Genus MNIOTILTA, Vieill.

Mniotilta varia, Linn.—The Black and White Creeper.
Certhia varia, Wils. Amer. Orn., vol. 3, p. 23.
Mniotilta varia, Aud. Birds of Amer., 8 vo., vol. 2, pl. 114, p. 105.

Common in Texas and the Indian territory.

Genus SYLVANIA, Nutt.

Sylvania mitrata, Lath.—The Hooded Fly-catching Warbler.
Muscicapa cucullata, Wils. Amer. Orn., vol. 3, p. 101.
Sylvia mitrata, Bonap. Syn., p. 79.
Myiodioctes mitrata, Aud. Birds of Amer., vol. 2, pl. 71, p. 12.

Very common in the Indian territory, keeping along streams in the dense thickets, continually in motion, busily engaged in pursuing insects. Common also in Texas.

Sylvania Wilsonii, Bonap.—The Green Black-capped Fly-catching Warbler.
Muscicapa pusilla, Wils. Amer. Orn., vol. 3, p. 103.
Sylvia Wilsonii, Bonap. Syn., p. 86.
Myiodioctes Wilsonii, Aud. Birds of Amer., 8 vo., vol. 2, pl. 75, p. 21.

Common in Texas and the Indian territory.

Sylvania formosa, Wils.—The Kentucky Fly-catching Warbler.
Sylvia formosa, Wils. Amer. Orn., vol. 3, p. 85.
Myiodioctes formosus, Aud. Birds of Amer., 8 vo., vol. 2, pl. 74, p. 19.

Common in Texas and the Indian territory, frequenting the borders of streams whose banks are covered with low bushes, procuring its insect prey.

Genus SYLVICOLA, Swains.

Sylvicola æstiva, Gmel.—The Yellow Poll Wood Warbler.
Sylvia citrinella, Wils. Amer. Orn., vol. 2.
Sylvia æstiva, Bonap. Syn., p. 83.
Sylvia childrenii, Aud. Orn. Biog., vol. 1, p. 180. Young.
Sylvicola æstiva, Aud. Birds of Amer., vol. 2, pl. 88, p. 50.

Abundant in Texas and the Indian territory.

Sylvicola virens, Gmel.—The Black-throated Green Wood Warbler.
Sylvia virens, Wils. Amer. Orn., vol. 2, p. 127.
Sylvicola virens, Aud. Birds of Amer., vol. 2, pl. 84, p. 42.

Common in Texas and the Indian territory.

Sylvicola striata, Lath.—The Black Poll Wood Warbler.
Sylvia striata, Wils. Amer. Orn., vol. 4, p. 40.
Sylvicola striata, Aud. Birds of Amer., vol. 2, pl. 78, p. 28.

Common in the Indian territory and Texas.

Sylvicola cœrulea, Wils.—The Cœrulean Wood Warbler.
Sylvia cærulea, Wils. Amer. Orn., vol. 2, p. 104. Male.
Sylvia rara, Wils. Amer. Orn., vol. 3, p. 119. Young.
Sylvia azurea, Bonap. Syn., p. 85.
Sylvicola cœrulea, Aud. Birds of Amer., 8 vo , vol. 2, pl. 86, p. 45.

This beautiful little wood warbler, so rare in the eastern and middle States, is quite common in Texas and the Creek and Cherokee countries. In the latter countries it breeds; there I obtained both old and young. Its nest I have never found. It was quite abundant in the timber of the Arkansas river and its tributaries.

Sylvicola pinus, Linn.—The Pine Creeping Wood Warbler.
Sylvia pinus, Wils. Amer. Orn., vol. 3, p. 25.
Sylvia Vigorsii, Aud. Orn. Biog., vol. 1, p. 153. Young.
Sylvicola pinus, Aud. Birds of Amer., 8 vo., vol. 2, pl. 82, p. 37.

Common in Texas and New Mexico.

SYLVICOLA CANADENSIS, Linn.—The Black-throated Blue Wood Warbler.
Motacilla canadensis, Linn. Syst. Nat., vol. 1, p. 334.
Sylvia canadensis, Wils. Amer. Orn., vol. 2, p. 115. Male.
Sylvia pusilla, Wils. Amer. Orn., vol. 5, p. 100. Young.
Sylvia sphagnosa, Nutt. Man., vol. 1, p. 406. Young.
Sylvicola canadensis, Aud. Orn., 8 vo., vol. 2, pl. 95, p. 63.

Abundant in Texas and the Indian territory.

SYLVICOLA CORONATA, Linn.—The Yellow-rump Wood Warbler.
Sylvicola coronata, Aud. Birds of Amer., 8 vo., vol. 2, pl. 76, p. 23.
Motacilla umbria, Linn. pl. enl., 709, fig. 1.
Sylvia coronata, Wils. Amer. Orn., vol. 2, p. 138.

Common in the Indian territory, Texas, and in some portions of New Mexico.

SYLVICOLA AMERICANA, Linn.—The Yellow-backed Wood Warbler.
Sylvia pusilla, Wils. Amer. Orn., vol. 4, p. 17.
Sylvia torquata, Vieill. Ois d'Amer. Sept., t. 99.
Motacilla ludoviciana, Gmel. Bris. Orn., 3, t. 26, fig. 4.
Sylvicola Americana, Aud. Orn., 8 vo., vol. 2, pl. 91, p. 57.

Very abundant in Texas and the Indian country. In the latter country it breeds.

SYLVICOLA AUDUBONII, Towns.—Audubon's Wood Warbler.
Sylvia Audubonii, Towns. Jour. A. N. Sc., Phila., vol. 7, p. 190.
Sylvicola Audubonii, Aud. Birds of Amer., 8 vo., vol. 2, pl. 77, p. 26.

This handsome wood warbler is abundant throughout New Mexico and California, confining itself principally to the timbered mountainous districts. I observed it very abundant in the San Francisco mountain, New Mexico, feeding among the tall pines. It much resembles in its habits the *S. coronata*.

Genus TRICHAS, Swains.

TRICHAS MARILANDICUS, Briss.—The Maryland Yellow Throat, or Ground Warbler.
Sylvia Marilandica, Wils. Amer. Orn., vol. 1, p. 88. Male.
" " Wils. Amer. Orn., vol. 2, p. 163. Female.
Sylvia Roscoe, Aud. Orn. Biog., vol. 1, p. 124. Young.
Trichas personatus, Swains.
Trichas Marilandicus, Aud. Birds of Amer., 8 vo., vol. 2, pl. 102, p. 78.

Common in Texas and the Indian territory.

Genus VERMIVORA, Swains.

Vermivora protonotarius, Wils.—The Prothonotary Worm-eating Warbler.
Sylvia protonotarius, Wils. Amer. Orn., vol. 3, p. 72.
Helinaia protonotarius, Aud. Birds of Amer., 8 vo., vol. 2, pl. 106, p. 89.

Very abundant in Texas and the Indian territory. In the latter country it breeds.

Vermivora solitaria, Wilson.—The Blue-winged Yellow Worm-eating Warbler.
Sylvia solitaria, Wils. Amer. Orn., vol. 2, p. 109.
Helinaia solitaia, Aud. Orn , 8 vo., vol. 2, pl. 3, p. 98.

Common in Texas and the Indian territory. In the latter country it breeds.

Genus TURDUS, Linn.

Turdus solitarius, Wils.—The Hermit Thrush.
Turdus solitarius, Wils. Amer. Orn., vol. 5, p. 95.
Turdus minor, Nutt. Man., vol. 1, p. 364.
Merula solitaria, Swains. and Rich. F. Bor. Amer., vol. 2, p. 184.
Turdus solitarius, Aud. Birds of Amer., 8 vo., vol 3, pl. 146, p. 29.

This bird I found common throughout Texas, the Indian territory, and New Mexico.

Turdus migratorius, Linn.—The Migratory Thrush, or Robin.
Turdus migratorius, Wils. Amer. Orn., vol. 1, p. 35.
" " Aud. Birds of Amer., 8 vo., vol. 3, pl. 142, p. 14.

I have found the robin from the Gulf of Mexico to the Pacific ocean. In the San Francisco mountain, New Mexico, it was quite abundant.

Turdus mustelinus, Gmel.—The Wood Thrush.
Turdus melodus, Wils. Amer. Orn., vol. 1, p. 35.
Turdus mustelinus, Bonap. Syn., p. 75.
" " Aud. Birds of Amer., 8 vo., vol. 3, pl. 144, p. 24.

Common in Texas and the Indian territory.

Genus MIMUS, Boie.

Mimus polyglottus, Linn.—The Gray Mocking Thrush.
Turdus polyglottus, Wils. Amer. Orn., vol. 2, p. 14.
Orpheus leucopterus, Vigors.
Orpheus polyglottus, Aud. Birds of Amer., 8 vo., vol. 2, pl. 138, p. 187.

This charming songster is abundant in Texas and the Indian territory, and on the Rio Grande as far as El Paso, but rare in New Mexico.

MIMUS MONTANUS, Towns.—The Rocky Mountain Mocking Thrush.
Orpheus montanus, Towns. Jour. Acad. N. S., Phila., vol. 7, p. 192.
" " Aud. Birds of Amer., 8 vo., vol. 2, pl. 139, p. 194.

This interesting species I first observed in the Zuñi mountain, New Mexico, and throughout that country it was quite abundant. I regret not having heard its song; but being late in the season, it was silent.

MIMUS RUFUS, Linn.—The Ferruginous Mocking Thrush.
Turdus rufus, Wils. Amer. Orn., vol. 2, p. 83.
Orpheus rufus, Aud. Birds of Amer., 8 vo., vol. 3, pl. 141, p. 9

Common in Texas and the Indian territory.

Genus ICTERIA, Vieill.

ICTERIA VIRIDIS, Gmel.—The Yellow-breasted Chat.
Pipra polyglotta, Wils. Amer. Orn., vol. 1, p. 90.
Icteria viridis, Aud. Birds of Amer., 8 vo., vol. 4, pl. 224, p. 160.

This exceedingly interesting and beautiful bird I have met with abundantly throughout Texas and the Indian territory, and in some parts of New Mexico. In the vicinity of the pueblo of Zuñi it is a common species.

Genus TYRANNUS, Cuv.

TYRANNUS INTREPIDUS, Vieill.—The King Bird, or Great Tyrant
Lanius tyrannus, Linn. Syst. Nat., vol. 1, p. 136.
Muscicapa tyrannus, Wils. Amer. Orn., vol. 1, p. 66.
" " Aud. Birds of Amer., vol. 1, pl. 56, p. 204.

Very common in Texas and the Indian territory.

Genus MILVULUS, Swains.

MILVULUS FORFICATUS, Gmel.—The Red-shouldered Swallow-tailed Fly-catcher.
Muscicapa forficata, Bonap. Amer. Orn., vol. 1, p. 15.
" " Nutt. Man., vol. 1, p. 275.
Milvulus forficatus, Aud. Birds of Amer., 8 vo., vol. 1, pl. 53, p. 197.

This beautiful and singular bird I found common in Texas, particularly about the town of San Antonio. It would alight upon the top of a mesquite tree (*Algarobia*) or bush, then suddenly start off with a harsh chirping note, circle through the air, expanding and contracting its beautiful flowing tail, eagerly pursuing its insect prey.

In the Indian territory it was also common, particularly near the Cross Timbers. I found it breeding, in the beginning of the month of July, on the Great Prairie. Its nest was placed on the horizontal branch of a small scrub oak, (*Quercus*) about six feet from the ground, and was composed of coarse dry grass and sticks It contained four young ones nearly able to fly. On my approach the female flew, alighting on a bush near by. The male bird flew to a great height, circling round in the air apparently watching my movements, and at the same time uttering his coarse chirp as if scolding me.

Genus TYRANNULA, Swains.

TYRANNULA CRINITA, Linn.—The Great-crested Fly-catcher.
Muscicapa crinita, Wils. Amer. Orn., vol. 2, p. 75.
Tyrannus viritabilis, Vieill.
Muscicapa ludoviciana, Gmel. Vieill. Ois d'Amer. Sept., t. 45.
Muscicapa crinita, Aud. Birds of Amer., 8 vo., vol. 1, pl. 57, p. 209.

Very abundant in Texas and the Indian territory.

TYRANNULA SAYA, Bonap.—Say's Tyrant Fly-catcher.
Tyrannulu pallida, Swains. and Rich. F. Bor. Amer., pl. 45.
Tyrannula Saya, Swains. and Rich. F. Bor. Amer., vol. 2, p. 142.
Muscicapa Saya, Aud. Birds of Amer., vol. 1, pl. 49, p. 217.

I observed this bird frequently in western Texas and New Mexico. In its habits it much resembles our common pewee, (*T. fusca*) but is more silent and shy.

TYRANNULA NUNCIOLA, Wils.—The Pewee Fly-catcher.
Muscicapa nunciola, Wils. Amer. Orn., vol. 2, p. 78.
Muscicapa fusca, Bonap. Syn., p. 68.
" " Aud. Birds of Amer., 8 vo., vol. 1, pl. 68, p. 223.

Common in Texas and the Indian territory.

TYRANNULA VIRENS, Linn.—The Wood Pewee.
Muscicapa rapax, Wils. Amer. Orn., vol. 2, p. 81.
Muscicapa virens, Nutt. Man., vol. 1, p. 285.
" " Aud. Birds of Amer., 8 vo., vol. 1, pl. 64, p. 231.

Common in Texas and the Indian territory.

TYRANNULA ACADICA, Gmel.—The Small Green-crested Fly-catcher.
Muscicapa querula, Wils. Amer. Orn., vol. 2, p. 77.
Muscicapa acadica, Bonap. Syn., p. 68.
" " Aud. Birds of Amer., 8 vo., vol. 1, pl. 62, p. 221.

Common in Texas, New Mexico, and the Indian territory.

TYRANNULA TRAILLII, Aud.—Traill's Fly-catcher.
Muscicapa virens, Aud. Orn. Biog., vol. 1, p. 236; vol. 5, p. 426.
Muscicapa Traillii, Aud. Birds of Amer., 8 vo., vol. 1, pl. 65, p. 234.

Common in Texas and the Indian territory.

Genus PYROCEPHALUS, Gould.

Pyrocephalus nanus, Gould.—The Dwarf Fly-catcher.

Pyrocephalus nanus, Gould. Voyage of the Beagle, pl. 7.

This beautiful little fly-catcher I met with, for the first and only time, near the settlement of Quihi, in Texas, in the month of May; it was feeding in the thickets. I did not hear its note when I procured the specimen, which was a male.

Genus SETOPHAGA, Swains.

Setophaga ruticilla, Gmel.—The American Redstart.

Muscicapa ruticilla, Gmel. Wils. Amer. Orn., vol. 1, p. 103.
" " Aud. Birds of Amer., 8 vo., vol. 1, pl. 68, p. 240.

Common in Texas, New Mexico, and the Indian territory.

Genus VIREO, Vieill.

Vireo flavifrons, Gmel.—The Yellow-throated Greenlet.

Muscicapa sylvicola, Wils. Amer. Orn., vol. 2, p. 117.
Vireo flavifrons, Gmel. Vieill. Ois d'Amer. Sept., t. 54.
" " Aud. Birds of Amer., 8 vo., vol. 4, pl. 238, p. 141

Very abundant in Texas, New Mexico, and the Indian territory.

Vireo noveboracencis, Gmel.—The White-eyed Greenlet.

Muscicapa cantatrix, Wils. Amer. Orn., vol. 2, p. 266.
Vireo noveboracencis, Aud. Orn., 8 vo., vol. 4, pl. 240, p. 146.

This interesting and noisy little greenlet is found abundant in Texas, New Mexico, and the Indian territory, frequenting the thickets bordering on the streams.

Vireo atricapilla, Woodhouse.—The Black-capped Greenlet.

Vireo atricapilla, Woodhouse, Proc. Ac. N. Sc., Phila., vol. vi, p. 60.

Form.—Robust; wings short and slightly rounded; first quill short, third longest; tail extending about one inch beyond the closed wings.

Dimensions.—Total length from tip of bill to tip of tail	4$\frac{5}{10}$	inches.
Extent of wings	7¼	"
Length of wing from flexure	2$\frac{1}{10}$	"
Length of tail	1$\frac{6}{10}$	"

Colors.—Head above black, which color extends over the cheeks and ears to the base of the lower mandible; a white ring encircles the eye, and then forms a broad band extending to the nares. The plumage of the back is dark olive-green, slightly tipped with black, and gradually becoming lighter over the rump and tail coverts; wings and tail dark brown, inclining to black, with their outer margin light olive; greater and lesser wing coverts broadly tipped with dingy white. The primaries have a white line extending along their inner edge; throat, belly, and vent, white; sides very light yellow; iris bright red; bill, tarsi, and feet, black.

Habitat.—Western Texas.

On the twenty-sixth of May, 1851, while encamped on the Rio San Pedro, within about ten miles of its source, I was out in pursuit of specimens. Wandering about the hills among some cedars (*Juniperus*) my attention was first attracted by a singular note, which I am unable to describe; on looking I discovered this beautiful little bird, which I at first took to belong to that interesting family of fly-catching wood warblers *Sylvania*, it being continually in motion. It was with the greatest difficulty that I could procure specimens; two, however, I secured, both of which, on dissection, proved to be males.

VIREO GILVUS, Vieill.—The Warbling Greenlet.
Muscicapa melodia, Wils. Amer. Orn., vol. 5, p. 85.
Vireo gilvus, Aud. Orn., 8 vo., vol. 4, pl. 241, p. 149.

Common in Texas, New Mexico, and the Indian territory.

VIREO OLIVACEUS, Linn.—The Red-eyed Greenlet.
Muscicapa olivacea, Wils. Amer. Orn., vol. 2, p. 55.
Vireo olivaceus, Swains. and Rich. F. B. Amer., vol. 2, p. 233.
" " Aud. Orn., 8 vo., vol. 4, pl. 243, p. 155.

Common in the Indian territory, Texas, and New Mexico.

VIREO BELLII, Aud.—Bell's Vireo, or Greenlet.
Vireo Bellii, Aud. Birds of Amer., 8 vo., vol. 7, pl. 485.

This interesting little greenlet I found abundant in Texas.

Genus PTILOGONYS, Swains.

PTILOGONYS TOWNSENDII, Aud.—Townsend's Ptilogonys.
Ptilogonys Townsendii, Aud. Birds of Amer., 8 vo., vol. 1, pl. 69, p. 243.

Of this singular bird, which has been almost unknown in collections, I obtained several specimens, both male and female. I saw it for the first time in the Zuñi mountain, and from there west found it exceedingly abundant. Its food appeared to be principally berries, and in many places it was common among the cedars, (*Juniperus*) upon the berries of which they were feeding. I am unable to detect any difference in the plumage between the sexes.

Genus LANIUS, Linn.

LANIUS LUDOVICIANUS, Linn.—The Loggerheaded Shrike.
Lanius ludovicianus, Aud. Birds of Amer., 8 vo., vol. 4, pl. 237, p. 135
Lanius Carolinensis, Wils. Amer. Orn., vol. 3, p. 57.

Very abundant in Texas and the Indian territory.

Lanius excubitoroides, Swains.—The American Gray Shrike.
Lanius excubitoroides, Swains. and Rich. F. Bor. Amer., vol. 2, p. 115, pl. 34.

This beautiful shrike I found very abundant in Texas.

Genus CYANOCORAX, Boie.

Cyanocorax cristatus, Linn.—The Blue Jay.
Corvus cristatus, Wils. Amer. Orn., vol. 1, p. 2.
Garrulus cristatus, Aud. Birds of Amer., 8vo., vol. 4, pl. 231, p. 110

Common in Texas and the Indian territory.

Cyanocorax Stelleri, Gmel.—The Stellers Jay.
Corvus Stelleri, Gmel. Linn. Syst. Nat., vol. 1, p. 370.
" " Amer. Orn., vol. 2, p. 44.
Garrulus Stelleri, Aud. Birds of Amer., vol. 4, pl. 230, p. 107.

This beautiful jay was quite abundant throughout New Mexico. I principally found it among the pines on the mountains.

Cyanocorax Californica, Vigors.—The California Jay.
Garrulus Californicus, Vigors, Zool. Beechy's Voyage.
Garrulus ultramarinus, Aud. Birds of Amer., 8vo., vol. 4, pl. 232, p. 115.
Cyanocitta superciliosus, Strick. Annals and Mag. of Nat. Hist., 1845.

This bird, for a long time, has been by many ornithologists confounded with the Mexican species, *C. ultramarinus*, described by Bonaparte; from which it differs not only in size, being much smaller, but also in color and markings.

Wherever I found the piñon or nut-pine (*Pinus edulis*, Eng.) growing in New Mexico, this bird was sure to be there in great numbers, feeding upon the fruit of these trees. Among the men it was known as the piñon bird. Its note is harsh and disagreeable. It was extremely restless, being continually in motion flying from tree to tree, uttering its well-known cry.

Genus PICA, Briss.

Pica hudsonica, Sabine.—The Common Magpie.
Corvus pica, Linn. Syst. Nat., vol. 1, p. 157.
Pica melanoleuca, Aud. Birds of Amer., vol. 4, pl. 227, p. 99.

I have observed but few of these birds, and they were in New Mexico.

Pica Nuttallii, Aud.—Nuttall's Yellow-billed Magpie.
Pica Nuttallii, Aud. Birds of Amer., 8vo., vol. 4, pl. 228, p. 104.

During the month of January, 1852, whilst passing from San Francisco to San José, in California, I for the first time saw this beautiful magpie, which was discovered by my friend, Mr. Thos. Nuttall, who has spent much time in this portion of the country, and to whose indefatigable labor in the advancement of the natural sciences of the country we are so much indebted. It appeared to be quite tame, and was very abundant. Associated with it were numerous blackbirds, (*Quiscalus;*) all of whom were feeding on the ground, evidently hunting worms.

Genus CORVUS, Linn.

Corvus corax, Linn.—The Raven.
Corvus corax, Linn., pl. enl. 495.
Corvus maximus, Scop. Gould. B. of Eur., pl. 220.
Corvus clericus, Sparrm. Mus. Carls., t. 2.
Corvus corax, Aud. Birds of Amer., 8vo., vol. 4, pl. 224, p. 78.

Very abundant in Texas, the Indian territory, New Mexico, and California. On the great prairies, in the buffalo range, I found it exceedingly abundant.

Corvus Americanus, Aud.—The American Crow.
Corvus corone, Wils. Amer. Orn., vol. 4, p. 79.
" " Swains. and Rich. F. B. Amer., vol. 2, p. 291.
Corvus Americanus, Aud. Birds of Amer., 8vo., vol. 4, pl. 325, p. 87.

Common in the Indian territory, Texas, and New Mexico.

Corvus ossifragus, Wils.—The Fish Crow.
Corvus ossifragus, Wils. Amer. Orn., vol. 5, p. 27.
" " Aud. Birds of Amer., 8vo., vol. 4, pl. 226, p. 94.

Common in the Indian territory, Texas, New Mexico, and California.

Genus STURNELLA, Vieill.

Sturnella neglecta, Aud.—The Missouri Meadow Lark.
Sturnella neglecta, Aud. Birds of Amer., 8vo., vol. 7, plate 489.

This pretty starling, which is so abundant on the great prairies in the Indian territory, also in Texas and New Mexico, in its habits and mode of flight I could not distinguish it from the *S. ludovicianus*.

Genus SCOLECOPHAGUS, Swains.

Scolecophagus ferrugineus, Wils.—The Rusty Maggot-eater.
Gracula ferruginea, Wils. Amer. Orn., vol. 3, p. 41.
Chalcophanes virescens, Wagler.
Oriolus leucocephalus, Lath.
Quiscalus ferrugineus, Aud. Birds of Amer., 8vo., vol. 4, pl. 222, p. 65.

I found this species very abundant in the Indian territory, Texas, New Mexico, and California.

Genus QUISCALUS, Vieill.

QUISCALUS MAJOR, Vieill.—The Great Crow Blackbird.
Quiscalus major, Bonap. Amer. Orn., vol. 1, p. 35.
" " Aud. Orn., 8vo., vol. 4, pl. 220, p. 82.

This large and beautiful blackbird I have found abundant throughout the Indian territory, Texas, New Mexico, and California.

QUISCALUS PURPUREUS, Licht.—The Purple Coat-tail Gracle.
Gracula quiscala, Wils. Amer. Orn., vol. 3, p. 44.
Quiscalus nitenus, Licht.
Quiscalus versicolor, Swains. and Rich. F. Bor. Amer., vol. 2, p. 485.
" " Aud. Orn., 8vo., vol. 4, pl. 221, p. 58.

Abundant in Texas, New Mexico, the Indian territory, and California.

Genus XANTHORNUS, Cuv.

XANTHORNUS VARIUS, Gmel.—The Orchard Hangnest.
Oriolus castaneus, Lath.
Oriolus mutatus, Wils. Amer. Orn., vol. 1, p. 64.
Pendulinus solitarius et P. viridis, Vieill.
Icterus spurius, Aud. Birds of Amer., vol. 4, pl. 119, p. 46.

Abundant in the Indian territory.

XANTHORNUS AFFINIS, Lawrence.—The Lesser Orchard Oriole.
Zanthornus affinis, Law. Anal. Lyc. N. York, No. 3, vol. 5.

This bird differs from the *X. varia* only in size, the color and general appearance being the same. I found it numerous and breeding in Texas.

Genus YPHANTES, Vieill.

YPHANTES BALTIMORE, Linn.—The Baltimore Hangnest.
Oriolus Baltimore, Wils. Amer. Orn., vol. 1, p. 23.
Icterus minor, Briss.
Icterus Baltimore, Aud. Birds of Amer., 8vo., vol. 4, pl. 217, p. 37.

Common in the Indian territory and in Eastern Texas.

Genus MOLOTHRUS, Swains.

Molothrus pecoris, Gmel.—The Common Crowbird.
Icterus emberizoides, Daud.
Sturnus junceti, Lath.
Emberiza pecoris, Wils. Amer. Orn., vol. 2, p. 145.
Molothrus pecoris, Swains. and Rich. F. Bor. Amer., vol. 2, p. 277.
" " Aud. Birds of Amer., 8vo., vol. 4, pl. 212, p. 16.

Common throughout the Indian territory, Texas, New Mexico, and Calfornia.

Genus AGELAIUS, Vieill.

Agelaius xanthocephalus, Bonap.—The Saffron-headed Blackbird.
Icterus icterocephalus, Bonap. Amer. Orn., vol. 1, p. 27.
Agelaius xanthocephalus, Swains. and Rich. F. Bor. Amer., vol. 2, p. 281.
" " Aud. Birds of Amer., 8vo., vol. 4, pl. 213, p. 24.

In the spring of the year this beautiful bird is abundant throughout Texas, the Indian territory, and California: in the latter country I observed it in January, near San Francisco, California.

Agelaius phœniceus, Linn.—The Red and Yellow Winged Marsh Blackbird.
Sturnus prædatorius, Wils. Amer. Orn., vol. 4, p. 30.
Icterus phœniceus, Bonap. Syn., p. 52.
Agelaius phœniceus, Swains. and Rich. F. Bor. Amer., vol. 2, p. 280.
Oriolus melancolicus, var. Lath., pl. enl. 448.
Agelaius phœniceus, Aud. Orn., 8vo., vol. 4, pl. 44, p. 31.

Abundant throughout the country wherever marshes exist, in Texas, New Mexico, and in the Indian territory. I found them also in the San Francisco mountain, near the Laguna Enematio.

Agelaius tricolor, Audub.—The Red and White Winged Blackbird.
Icterus tricolor, Aud. Orn. Biog., vol. 5, p. 1.
Agelaius tricolor, Aud. Birds of Amer., vol. 4, pl. 214, p. 27

This beautiful species, discovered by Mr. Thos. Nuttall, who sent the specimen to Mr. Audubon with the above name, I saw in flocks, with the other starlings and the *Pica Nuttallii*, quite abundant in California, in the valley of San José. They were feeding in the newly-ploughed fields, evidently in pursuit of grubs and worms.

Agelaius gubernator, Wagler.—The Red and Black Winged Blackbird.
Psarocolius gubernator, Wagler, Syst. Avium.
Agelaius gubernator, Aud. Birds of Amer., 8vo., vol. 4, pl. 215, p. 29.

Found in California, associated with the other marsh blackbirds.

Genus DOLICHONYX, Swains.

Dolichonyx oryzivorus, Linn.—The Wandering Rice Bird.
Emberiza oryzivorus, Wils. Amer. Orn., vol. 2, p. 48.
Icterus agripennis, Bonap. Syn., p. 53.
Dolichonyx oryzivorus, Swains. and Rich. F. Bor. Amer., vol. 2, p. 278.
" " Aud. Birds of Amer., 8vo., vol. 4, pl. 211, p. 10.

These birds we found in Texas early in the spring, and in the Indian territory on the prairies about Fort Gibson, early in May, where they remain but a short time.

Genus GUIRACA, Swains.

Guiraca cœrulea, Linn.—The Blue Song Grosbeck.
Loxia cœrulea, Wils. Amer. Orn., vol. 3, p. 78.
Fringilla cœrulea, Nutt. Man. Orn., vol. 1, p. 229.
Coccoborus cœruleus, Aud. Birds of Amer., 8vo., vol. 3, pl. 204, p. 204.

This sweet songster I found abundant in the Indian territory and Texas.

Genus CARDINALIS, Bonap.

Cardinalis Virginianus, Bonap.—The Cardinal Grosbeck.
Loxia cardinalis, Linn.
Fringilla cardinalis, Nutt. Man. Orn., vol. 1, p. 519.
Pitylus cardinalis, Aud. Birds of Amer., vol. 3, pl. 203, p. 198.

Very common in Texas and the Indian territory.

Genus PIPILO, Vieill.

Pipilo arctica, Swains.—The Arctic Ground Finch.
Pyrgita (Pipilo) Arctica, Swains and Rich. F. Bor. Amer., vol. 2, p. 260.
Pipilo Arctica, Aud. Birds of Amer., 8 vo., vol. 3, pl. 194, p. 164.

I have seen but few of these birds either in the Indian territory or New Mexico.

Pipilo erythropthalmus, Linn.—The Towhe Ground Finch.
Emberiza erythropthalma, Wils. Amer. Orn., vol. 2, p. 35.
Fringilla erythropthalma, Nutt. Man., vol. 1, p. 515.
Pipilo erythropthalma, Aud. Birds of Amer., vol. 3, pl. 195, p. 167.

Common in the Indian territory, Texas, and New Mexico.

Genus PYRANGA, Vieill.

Pyranga rubra, Linn.—The Black-winged Tanager.
Tanagra rubra, Wils. Amer. Orn., vol. 2, p. 42.
Pyranga erythromelas, Vieill.
Pyranga rubra, Swains and Rich. F. Bor. Amer., vol. 2, p. 273.
" " Aud. Orn., 8 vo., vol. 3, pl. 209, p. 226.

Very common in the Indian territory and Texas.

Pyranga æstiva, Gmel.—The Summer Redbird, or Tanager
Tanagra Mississippiensis, Gmel. var. Lath. Syn., pl. 46.
Loxia Virginica, Gmel.
Tanagra olivacea, Gmel.
Tanagra rudis, Sparrm. Mus. Carls., t. 94.
Tanagra æstiva, Wils. Amer. Orn., vol. 1, p. 95.
Pyranga hepatica, Swains.
Pyranga æstiva, Aud. Birds of Amer., 8 vo., vol. 3, pl. 208, p. 222.

This beautiful species I have observed throughout the Indian territory, Texas, and New Mexico. It is rather solitary in its habits, frequenting the thick scrubby timber.

Pyranga Azarae, D'Orb. and Lafr.—Azara's Tanager.
Satator ruber et S. flavus, Vieill. Azara, Nos. 87, 88.
Pyranga Azarae, D'Orb. voy. Amer. Meri., p. 264, t. 4, pt. 3, 4.

I procured this beautiful tanager in the San Francisco mountain, New Mexico. It is a male, in full plumage.

Genus PASSERELLA, Swains.

Passerella iliaca, Merrem.—The Fox-colored Finch.
Fringilla rufa, Wils. Amer. Orn., vol. 3, p. 53.
Fringilla ferruginea, Gmel. Edwards' Birds, pl. 354, f. 1.
Emberiza pratensis, Vieill.
Zonotrichia iliaca, Swains. and Rich. F. Bor. Amer., vol. 2, p. 257.
Fringilla iliaca, Aud. Birds of Amer., vol. 3, pl. 186, p. 139.

The fox-colored sparrow I found very abundant in the Indian territory on the approach of winter.

Genus CHRYSOMITRIS, Boie.

Chrysomitris tristis, Linn.—The Thistle Bird or American Gold Finch.
Fringilla tristis, Wils. Amer. Orn., vol. 1, p. 20.
Carduelis Americana, (Edwards) Swains. and Rich. F. Bor. Amer., ii, p. 268.
Carduelis tristis, Aud. Birds of Amer., 8 vo., vol. 3, pl. 181, p. 129.

Abundant in Texas and the Indian territory.

Genus SPIZELLA, Bonap.

SPIZELLA SOCIALIS, Wilson.—The Chirping Sparrow.
Fringilla socialis, Wils. Amer. Orn., vol. 2, p. 127.
Emberiza socialis, Aud. Birds of Amer., 8 vo., vol. 3, pl. 163, p. 80.

This gentle little sparrow, so appropriately named by Wilson, is quite abundant in Texas and the Indian territory.

SPIZELLA PALLIDA, Swains.—The Clay-colored Sparrow.
Emberiza pallida, Swains. and Rich. F. Bor. Amer., vol. 2, p. 251.
" " Aud. Birds of Amer., 8 vo., vol. 3, pl. 161, p. 71.

This little sparrow is found throughout New Mexico wherever food and water are to be found in sufficient quantities to sustain life.

Genus STRUTHUS, Boie.

STRUTHUS HYEMALIS, Linn.—The Common Snow Finch.
Fringilla nivalis, Wils. Amer. Orn., vol. 2, p. 129.
" *Hudsonica*, Nutt. Man., vol. 1, p. 491.
Niphæa hyemalis, Aud. Birds of Amer., 8 vo., vol. 3, pl. 167, p. 88.

Common in the Indian territory during the fall and winter.

STRUTHUS OREGONUS, Towns.—The Western Snow Bird.
Fringilla Oregona, Towns. Jour. A. N. S., Phila., vol. 7, p. 188.
Niphæa Oregona, Aud. Orn., 8 vo., vol. 3, pl. 168, p. 91.

I observed this bird, for the first time, in the month of October, whilst encamped on the San Francisco mountain, near the Little Colorado, New Mexico. It was there very abundant in company with the various titmice, and in its habits it much resembles our *S. hyemalis*.

STRUTHUS CANICEPS, Woodhouse.—The Gray-headed Snow Finch.
Struthus caniceps, Woodhouse, Proc. Acad. N. Sc., Phil., vol. 6.

Form.—Bill longer and more gradually tapering than in the *S. Oregonus;* wings rounded; first quill shortest; second, third, and fourth nearly equal, third slightly longest; tail long and slightly emarginate; tarsus long and slender.

Colors.—Head above back of neck and cheeks dark gray; throat, breast, and sides lighter gray; abdomen, vent, and under tail coverts inclining to white; upper mandible dark brown, almost black; space between the eye and base of bill black; back bright reddish-brown; rump and upper tail coverts dark gray; tail dark brownish black, with the lateral tail feathers in some specimens entirely white, and with others having large spots of white on their inner webs; in one specimen which I have seen, all of the three lateral feathers are mottled; wings with the primaries dark brown and their outer margin narrowly edged with yellowish white; the secondaries with their inner webs dark brown, and their outer light reddish brown; scapular and lesser wing coverts light reddish-brown; tarsi and feet flesh color, nails brownish.

Dimensions.—Total length of skin from tip of bill to end of tail..	$6\frac{3}{10}$	inches.
Total length of bill along the ridge................	$\frac{4\frac{1}{2}}{10}$	"
Total length of wing from flexure................	$3\frac{1\frac{1}{2}}{10}$	"
Total length of tarsus...........................	$\frac{8\frac{1}{2}}{10}$	"
Total length of tail..............................	$3\frac{1}{10}$	"

The female has the feet and bill colored like the male; the general plumage is darker and not so bright; the head is ashy brown; back dark reddish-brown; secondaries dark brown with a slight reddish-brown margin on the outer webs; scapular feathers and lesser wing coverts grayish-brown; the measurements differ but little from those of the male, being slightly smaller.

Habitat.—Western Texas and Mexico.

My attention was first called to this bird by my friend Mr. John Cassin, who very kindly suggested an examination of several specimens of males in the collection of the Academy of Natural Sciences in connexion with another in his possession, and a female in the collection made by me which I obtained in the San Francisco mountain, New Mexico. When obtained, it was feeding in company with *S. Oregonus*, various species of *Parus*, and it appeared very similar to the former and the common snow finch (*S. hyemalis*) in its habits.

Genus ZONOTRICHIA, Swains.

ZONOTRICHIA GRAMINEA, Gmel.—The Grass or Bay-winged Finch.
Emberiza graminea, Wils. Amer. Orn., vol. 4, p. 51.
Fringilla (Zonotrichia) graminea, Swains. and Rich. F. Bor. Amer., ii, p. 254.
Emberiza graminea, Aud. Birds of Amer., 8 vo., vol. 3, pl. 159, p. 65.

This species I have found abundant from the Atlantic to the Pacific ocean, and in Texas.

ZONOTRICHIA LEUCOPHRYS, Forst.—The White-crowned Finch.
Emberiza leucophrys, Wils. Amer. Orn., vol. 4, p. 49.
Fringilla leucophrys, Nutt. Man. vol. 1, p. 497.
Fringilla Gambelii, Nutt. Man., 2d edit., vol. 1, p. 556. Young.
Zonotrichia leucophrys, Swains. and Rich. F. Bor. Amer., vol. 2, p. 255.
Fringilla leucophrys, Aud. Birds of Amer., 8 vo., vol. 3, pl. 192, p. 157.

I have met with this interesting bird abundantly in the Indian territory, Texas, and New Mexico. The *Fringilla Gambelii* described by my friend Mr. Thos. Nuttall is this bird in immature plumage. I have in the collections made by me quite an extensive series of specimens of this bird in various states of plumage, and satisfactorily shewing the plumage of both adult and young and intermediate stages.

Zonotrichia Blandingiana.—Gamb.
Fringilla Blandingiana, Gamb. Proc. A. N. S. Phila., vol. 1, p. 260.
Zonotrichia chlorura? (Aud.) Gamb. Journ. A. N. S. Phila., vol. 1, N. S. pl. 9, p. 51.
Fringilla chlorura? Aud. Orn. Biog., vol. 5, p. 336.

Whilst encamped on the Rio Salado, near San Antonio, Texas, in the beginning of the month of April, I procured a solitary specimen of this beautiful and interesting bird. Its favorite haunts seemed to be the low bushes in the vicinity of the creek: this was the only one I observed east of the Rio Grande. In the Zuñi mountain and in the vicinity of the pueblo of Zuñi it was quite abundant.

Zonotrichia Lincolnii, Aud.—Lincoln's Finch.
Fringilla Lincolnii, Aud. Orn. Biog. vol. 2, p. 539.
Peucea Lincolnii, Aud. Birds of Amer., 8 vo., vol. 3, pl. 177, p. 116.

This species I found exceedingly abundant throughout the Indian territory and Texas.

Zonotrichia albicollis, Gmel.—The White-throated Finch.
Fringilla albicollis, Wils. Amer. Orn., vol. 3, p. 51.
Fringilla Pennsylvanica, Lath. Edwards' Birds, pl. 304.
Zonotrichia Pennsylvanica, Swains. and Rich. F. B. Amer., vol. 2, p. 256.
Fringilla striata, Gmel.
Fringilla Pennsylvanica, Aud. Birds of Amer., vol. 3, pl. 191, p. 153.

Very abundant in the fall and winter throughout the Indian territory.

Genus PASSERCULUS, Bonap.

Passerculus savanna, Wils.—The Savanna Finch.
Fringilla savanna, Wils. Amer. Orn., vol. 4, p. 72.
Passerina savannarum, Vieill.
Emberiza savanna, Aud. Birds of Amer., vol. 3, pl. 160, p. 68.

This species I found among the most abundant of our finches, extending its range throughout the country in the Indian territory, Texas, New Mexico, and California. It confines itself principally to the grass in the open prairie, among which it dodges about with considerable agility: when suddenly surprised it takes to the wing. There appears to be a difference between those found in New Mexico and California and those east of the Mississippi river.

Passerculus Cassinii, Woodhouse.—Cassin's Finch.
Zonotrichia Cassinii, Woodhouse, Proc. A. N. S. Phila., vol. 6, p. 60.

Form.—Bill slender and conical, with a well marked ridge between the nostrils, extending about half way down the bill; wings short and rounded; first quill shortest, third and fourth about equal; tail long and rounded.

Dimensions.—Total length of skin from tip of bill to end of tail.	$5\frac{5}{10}$	inches.
Total length of tail	$2\frac{5}{10}$	"
Total length of bill along the ridge	$\frac{5\frac{1}{2}}{10}$	"
Total length of bill from gap to tip	$\frac{5}{10}$	"
Total length of tarsus	$1\frac{\frac{1}{2}}{10}$	"

Colors.—Head and back cinereous brown; throat and breast very light cinereous brown; sides light brown, with longitudinal brown stripes next the shafts; and at their extremities and the surrounding portions of the feather brownish-white. Belly and vent dingy white; a strip of dingy white extending from the base of the upper mandible over and behind the eye. Primaries brown, with their outer edges light brown; secondaries and scapulars brown, with a whitened band encircling them; wing at flexure, light yellow; the tail, with the exception of the two middle feathers, brown, tipped with white; the middle feathers light brown and slightly barred; in the outer feathers the white extends from the shaft along the outer side; upper mandible, light brown; lower, light yellow; tarsus and feet, flesh color; iris, dark brown. The tail extends beyond the closed wings about an inch and a half.

Habitat.—Western Texas.

This interesting bird I shot on the prairie, near San Antonio, on the 25th of April, 1851, and at the time took it for the *P. savanna*, (Wils.) which it much resembled in its habits; but, upon examination, it proved to be totally distinct. I have in my collection but a single specimen, which is a male.

I have named this in honor of my friend Mr. John Cassin, the corresponding secretary of the Academy of Natural Sciences, of Philadelphia, to whose indefatigable labor in the department of ornithology we are so much indebted.

Genus CHONDESTES, Swains.

CHONDESTES GRAMMACA, Say.—The Prairie Lark Finch.

Fringilla grammaca, Bonap. Amer. Orn., vol. 1, p. 47.

Chondestes strigata, Swains.

Emberiza grammaca, Bonap. Orn., 8 vo., vol. 3, p. 63, pl. 158.

This beautiful species I have found quite abundant on the prairies of Texas and the Indian territory, also in New Mexico along the river Del Norte. It is quite active and industrious in pursuit of food, being but seldom at rest; it is to be seen either among the grass on the ground, or perched upon the top of a bush, at the same time uttering a feeble chirp.

Genus AMMODRAMUS, Swains.

AMMODRAMUS PASSERINUS, Wils.—The Yellow-winged Shore Finch.

Fringilla passerina, Wils. Amer. Orn., vol. 3, p. 76.

Emberiza passerina, Aud. Birds of Amer., 8 vo., vol. 3, pl. 162, p. 73.

Very common in the Indian territory, Texas, and in some parts of New Mexico.

Genus SPIZA, Bonap.

Spiza cyanea, Linn.—Indigo Painted Finch.
Emberiza cyanella, Gmel.
Emberiza cærulea, Gmel.
Fringilla cyanea, Wils. Amer. Orn., vol. 1, p. 100.
Spiza cyanea, Aud. Birds of Amer., vol. 3, pl. 170, p. 96.

The pleasant song of the indigo finch is to be heard in the timber on the edge of the prairies, or in the thickets on the border of some stream in the Indian territory, where it is quite abundant.

Spiza ciris, Linn.—The Painted Finch.
Emberiza ciris, Wils. Amer. Orn., vol. 3, p. 68.
Fringilla ciris, Bonap. Syn., p. 107.
Spiza ciris, Aud. Birds of Amer., 8 vo., vol. 3, pl. 169, p. 93.

This beautiful and active little finch, with its sweet warblings, added much to the pleasure of our trip across the prairies of Texas, where it is common. Its favorite resorts are about small thickets, and when singing it mostly selects the highest branches of a bush.

Spiza amœna, Say.—The Lazuli Painted Finch.
Emberiza amœna, Say, Long's Expedition.
Fringilla amœna, Bonap. Amer. Orn., vol. 1, p. 61.
Spiza amœna, Aud. Birds of Amer., 8 vo., vol. 3, pl. 171, p. 100.

I saw but few of these handsome birds in New Mexico.

Genus EUSPIZA, Bonap.

Euspiza Americana, Gmel.—The Black-throated Finch.
Fringilla flavicollis, Gmel.
Passerina nigricollis, Vieill.
Emberiza Mexicana, Lath. Syn., pl. 44.
Emberiza Americana, Wils. Amer. Orn., vol. 1, p. 411.
" " Aud. Birds of Amer., 8 vo., vol. 3, pl. 156, p. 58.

Very common on the prairies, in the Indian territory, Texas, and New Mexico.

Genus EMBERIZA, Linn.

Emberiza bilineata, Cassin.
Emberiza bilineata, Cas. Proc. A. N. S., Phila., vol. 5, p. 104, pl. 3.

I procured but a single specimen of this bird as we passed up the Rio San Pedro, Texas

Genus PLECTROPHANES, Meyer.

Plectrophanes ornatus, Towns.—The Chesnut-colored Lark Bunting.
Plectrophanes ornatus, Towns. Jour. A. N. S., Phila., vol. 7, p. 189.
" " Aud. Birds of Amer., 8 vo., vol. 3, pl. 154, p. 58.
" " Towns.

I found this bird quite rare in the Indian territory, and secured but a single specimen.

Genus OTOCORIS, Bonap.

Otocoris alpestris, Linn.—The Horned or Shore Lark.
Alauda flava, Gmel.
Alauda nivalis, Pall.
Alauda cornuta, Swains. Phil. Mag. 1827, p. 434.
Alauda chrysolæma, Wagler.
Alauda alpestris, Aud. Birds of Amer., 8 vo., vol. 3, pl. 151, p. 44.

Very common in the Indian territory, Texas, New Mexico, and California.

Genus CARPODACUS, Kaup.

Carpodacus purpureus, Gmel.—The Crested Purple Finch.
Fringilla purpurea, Wils. Amer. Orn., vol. 1, p. 119.
Erythrospiza purpurea, Aud. Birds of Amer., 8 vo., vol. 3, pl. 196, p. 170.

The purple finch is common in New Mexico and the Indian territory.

Carpodacus familiaris, McCall.—The Domestic Purple Finch.
Carpodacus familiaris, McCall. Proc. A. N. Sc., Phila., vol. 6, p. 61.
Erythrospiza frontalis, Gambel. Jour. A. N. Sc., Phila., vol. 1, N. S., p. 53.

My attention was first called to this interesting little songster whilst at Santa Fé, where it is known to the Americans resident there as the adobe finch. By the Mexicans, birds of this species are called *Buriones*. They are exceedingly tame, building about the dwellings, churches, and other buildings, in every nook and corner, even entering the houses to pick up crumbs. They are, I believe, never disturbed by the inhabitants.

At the first dawn of the morning they commence with their sweet and clear warble, which it is impossible for me to describe by words. I have often in the early morning listened with admiration and gratification to the song of this bird, which is deservedly a great favorite. At first sight I took this species to be the *C. Frontalis*, Say; but on close examination, whilst at Santa Fé, I came to the conclusion that it was not that species. On my return to Philadelphia, whilst talking to my friend, Mr. Cassin, about it, he informed me that he had come to the same conclusion on seeing the specimens brought by Col. McCall, Inspector General U. S. Army, who was then about to describe it.

It is found throughout New Mexico, also in California, in both of which countries it remains throughout the year.

Genus CONURUS, Kuhl.

Conurus Carolinensis, Linn.—The Carolina Paraquet.
Psittacus Carolinensis, Linn. Syst. Nat., vol. 1, p. 141.
Psittacus ludovicianus, Gmel.
Psittacus luteicapillus, Vieill.
Centurus Carolinensis, Aud. Birds of Amer., 8 vo., vol. 4, pl. 278, p. 306.

Quite numerous in eastern Texas and in the Indian territory, confining itself to the timber lands of the large streams.

Genus PICUS, Linn.

Picus querulus, Wils.—The Red-cockaded Woodpecker
Picus querulus, Wils. Amer. Orn., vol. 2, p. 103.
Picus leucotis, Ill.
Picus borealis, Vieill.
Picus Vieillotii, Wagl.
Picus querulus, Aud. Orn., 8vo., vol. 4, pl. 264., p. 254.

Common in eastern Texas and the Indian territory

Picus villosus, Linn.—The Hairy Woodpecker.
Picus villosus, Wils. Amer. Orn., vol. 1, p. 150.
" " Aud. Birds of Amer., 8vo., vol. 4, p. 244, pl. 262

Common in the Indian territory and Texas.

Picus pubescens, Linn.—The Downy Woodpecker.
Picus pubescens, Wils. Amer Orn., vol. 1, p. 153.
" " Aud. Birds of Amer., 8vo., vol. 4, pl. 53, p. 249.
Dendrocopus pubescens, Swains. and Rich. F. Bor. Amer., vol. 2, p. 307.

Common throughout the Indian territory, Texas, and New Mexico.

Picus scalaris, Wagler.
Picus scalaris, Wagler, Isis, 1829, p. 511.

This beautiful little woodpecker abounds in Texas, east of the Pecos river. During my stay in San Antonio and its vicinity I became quite familiar with it. It was at any time to be seen flying from tree to tree, and lighting on the trunk of a mesquite tree, (*Algarobia*,) closely searching for its insect food; in its habits and notes it much resembles the *Picus pubescens*, Linn.

PICUS NUTTALLII, Gamb.—Nuttall's Woodpecker.
Picus Nuttallii, Gambel, Proc. A. N. S. Phila., vol. 1, p. 259.
Picus scalaris, (Wag.) Gambel, Jour. A. N. S., Phila., vol. 1, N. S. pl. 9, figs. 2, 3, p. 55.

My friend, the late Dr. Wm. Gambel, described this bird in the spring of 1843 in the proceedings of the Academy of Natural Sciences of Philadelphia as *Picus Nuttallii*; afterwards, in his paper entitled "Remarks on the Birds of California," published in the journal of the same society, he mistakes it for the *P. scalaris* of Wagler, and cites his own name as a synonym. In the latter he was entirely mistaken; not only do they differ in size, but in the markings. This bird I have only seen in California, from which country I have examined numerous specimens, together with the original specimens of Dr. G., and compared them with the specimens of the *P. scalaris*, of which I have quite a number in my collection. The latter I have never found west of the Rio San Pedro, Texas.

Genus CAMPEPHILUS, Gray.

CAMPEPHILUS PRINCIPALIS, Linn.—The Ivory-billed Woodpecker.
Picus principalis, Wils. Amer. Orn., vol. 4, p. 20.
" " Aud. Birds of Amer., 8vo., vol. 4, pl. 256, p. 214.

I have only observed this magnificent bird in the timber of the Arkansas river and in eastern Texas, in both of which places it was quite rare.

Genus DRYOCOPUS, Bois.

DRYOCOPUS PILEATUS, Linn.—The Log-cock, or Pileated Woodpecker.
Picus pileatus, Wils. Amer. Orn., vol. 4, p. 27.
" " Aud. Birds of Amer., 8vo , vol. 4, pl. 257, p. 226.

Quite abundant in the Indian territory, Texas, and New Mexico.

Genus CELEUS, Bois.

CELEUS TORQUATUS, Wils.—Lewis's Woodpecker.
Picus torquatus, Wils. Amer. Orn., vol. 3, p. 31.
Picus multicolor, Gmel.
Picus scutatus, Wagl.
Picus thoracicus, Less.
Picus torquatus, Aud. Birds of Amer., 8vo., vol. 4., pl. 272, p. 280.

Common in the Indian territory and New Mexico.

Genus CENTURUS, Swains.

CENTURUS CAROLINUS, Wils.—The Carolina Woodpecker.
Picus Carolinus, Wils. Amer. Orn., vol. 1, p. 112.
Picus griseus, Vieill.
Picus erythrauchen, Wagl.
Picus zebra, Bodd.
Picus Carolinus, Aud. Birds of Amer., 8vo., vol. 4, pl. 270, p. 270.

Common in the Indian territory and Texas.

CENTURUS FLAVIVENTRIS, Swains.—The Yellow-bellied Woodpecker.
Centurus flaviventris, Swains.

This bird, first described by Mr. Swainson, I found quite abundant in the neighborhood of San Antonio, Texas. West of the Rio San Pedro I have not seen it. It has a loud, sharp cry, which it utters as it flies from tree to tree. I mostly observed it on the trunks of the mesquite, (*Algarobia*,) diligently searching in the usual manner of woodpeckers.

Genus MELANERPES, Swains.

MELANERPES ERYTHROCEPHALUS, Linn.—The Red-headed Woodpecker.
Picus erythrocephalus, Wils. Birds of Amer., 8vo., vol. 1, p. 142.
Melanerpes erythrocephalus, Swains. and Rich. F. B. Amer., vol. 2, p. 316.
Picus erythrocephalus, Aud. Birds of Amer., 8vo., vol. 4, pl. 271, p. 274.

Abundant in the Indian territory and Texas.

Genus COLAPTES, Swains.

COLAPTES AURATUS, Linn.—The Golden-winged Woodpecker.
Picus auratus, Wils. Amer. Orn., vol. 2, p. 45.
" " Aud. Birds of Amer., 8vo., vol. 4, pl. 273, p. 282.
Colaptes auratus, Swains. and Rich. F. Bor. Amer., vol. 2, p. 314.

Very abundant in Texas and the Indian territory.

COLAPTES MEXICANOIDES, Lafr.—The Red-shafted Flicker.
Colaptes Mexicanus, Swains. Syn. B. of Mex., Phil. Mag., No. 84.
Picus Mexicanus, Aud. Birds of Amer., 8vo , vol. 4, pl. 274, p. 290.

Common along the Rio Grande.

Genus GEOCOCCYX, Wagler.

GEOCOCCYX MEXICANUS, Gmel.—The Paisano or Chaparral Cock.

Common in western Texas, frequenting barren and bushy plains. I, however, have met with it only occasionally, and then was not able to get a shot at it, being so swift of foot, and disappearing almost immediately among the thickets. It is frequently captured by pursuing it on horseback.

Genus COCCYZUS, Vieill.

COCCYZUS AMERICANUS, Linn.—The Yellow-billed Cuckoo.
Cuculus Carolinensis, Wils. Amer. Orn., vol. 4, p. 13.
Coccyzus pyrrhopterus, Vieill.
Coccyzus Americanus, Aud., 8vo., vol. 4, pl. 275, p. 293.

Very common in the Indian territory, Texas, and New Mexico.

COCCYZUS ERYTHROPTHALMUS, Wils.—The Black-billed Cuckoo.
Cuculus erythropthalmus, Wils. Amer. Orn., vol. 4, p. 15.
Coccyzus dominicus, Nutt. Man., vol. 1, p. 556.
Coccyzus erythropthalmus, Aud. Birds of Amer., vol. 4, pl. 276, p. 300.

I observed but few of these birds either in Texas or the Indian territory.

Genus COLUMBA, Linn.

COLUMBA FASCIATA, Say.—The Band-tailed Pigeon.
Columba fasciata, Say, Long's Exped., vol. 2, p. 10.
" " Aud. Birds of Amer., 8 vo., vol. 4, pl. 279, p. 312.

Small flocks of this beautiful pigeon I observed in New Mexico, particularly in the San Francisco mountain; also in California.

Genus ECTOPISTES, Swains.

ECTOPISTES MIGRATORIUS, Linn.—The Passenger Pigeon.
Columba migratoria, Linn, Syst. Nat., vol. 1, p. 285.
Columba Canadensis, Linn.
Ectopistes migratoria, Aud. Birds of Amer., 8 vo., vol. 5, pl. 285, p. 25.

Common in the Indian territory in the spring and fall, during their migrations.

ECTOPISTES CAROLINENSIS, Linn.—The Carolina Turtle Dove.
Columba Carolinensis, Wils. Amer. Orn., vol. 5, p. 91.
" " Linn, Syst. Nat., vol. 1, p. 286.
Ectopistes Carolinensis, Aud. Birds of Amer., 8 vo., vol. 5, pl. 286, p. 36.

The mournful notes of this bird were to be heard continually throughout the Indian territory and the most part of Texas and New Mexico, in which countries it breeds.

Ectopistes marginellus, Woodhouse.—The small Long-tailed Dove.

Ectopistes marginellus, Woodhouse, Proc. A. N. S. Phila., vol. 6, p. 104.

Form.—Bill short and slender; wings long and pointed; second quill distinctly longest, its general form resembling *E. Carolinensis*, but much more delicate.

Dimensions.—

Total length of skin from tip of bill to end of tail..	$9\frac{3}{10}$	inches.
Total length of wing from flexure..................	$5\frac{4}{10}$	"
Total length of tarsus..............................	$\frac{7\frac{1}{2}}{10}$	"
Total length of bill..................................	$\frac{6}{10}$	"
Total length of bill from gap......................	$\frac{7}{10}$	"
Total length of tail..................................	4	"

Color.—Bill dark brown; upper surface of the head brown, mottled with black and light brown; hind part of neck, back, and upper tail coverts of a lightish-brown; a brownish-white band extends from each eye across the forehead; one of reddish-brown from the anterior part of the orbit to the back of the head; throat very light brown, inclining to white; the feathers of the lower portion of the throat are black, with a light brown margin, giving the appearance of circular bands of black and white; belly, vent, and under tail coverts light fawn; sides lead color; primaries dark brown; the first, second, and third quills have a white line extending along their outer edge; secondaries are rather lighter, and have a light brown margin; on their upper surface they are reddish-brown; tertiary feathers and wing coverts reddish-brown with a light margin, and on the outer edge an elongated black spot; the tail consists of fourteen feathers, the two central of which are dark brown; the four lateral feathers are black near the extremity and white at tip; tarsus and feet light red.

Habitat.—Cross Timbers.

This species somewhat resembles *E. Carolinensis*, Linn., but on examination proves to be totally different. I procured it in the Cross Timbers, on the north fork of the Canadian, where I saw a number of them feeding on the ground, and at that time was struck with their small size, being so much smaller than our common dove. I was unable to procure more than one specimen, which, upon dissection, proved to be a male.

Genus MELEAGRIS, Linn.

Meleagris gallopavo, Linn.—The Wild Turkey.

Meleagris gallopavo, Linn, pl. enl., 97.
" " Bonap. Amer. Orn., vol. 1, p. 97.
" " Aud. Birds of Amer., 8 vo., vol. 5, pl. 287, 288, p. 42
Meleagris sylvestris, Vieill.
Gallopavo sylvestris, Catesby, Gal. des Ois., t. 201.

Throughout the wooded portions of the Indian territory and Texas this bird abounds. Whilst in the Creek country our men killed numbers of them daily; many of them were very large and weighed upwards of nineteen pounds, although at the same time they were in poor condition. They are quite abundant along the Rio San Pedro, Texas.

They are also found in New Mexico, in the neighborhood of the copper mines. I am told by our officers that those found there are of an enormous size. Those I saw whilst at Santa Fé did not appear to be different from our common species. Mr. Leroux, our guide, informed me that the turkeys of the Gila river were different from those found east of the Rio Grande, and that they have much white about them. I saw turkeys but once after crossing the Rio Grande, and they were at the head of Bill Williams's river, but I was too far off to notice any difference.

Genus CYRTONYX, Gould.

CYRTONYX MASSENA, Less.—The Messena Partridge.
Ortyx Montezuma, Vigors. Jard. and Silby, Ill. Orn., pl. 126.
Odontophorus meleagris, Wagler.
Perdix perspicillata, Licht. Gould. Monogr. Odont., pt. 1.
Cyrtonyx Massena, Cassin's Birds of Cal. and Texas, vol. 1, pl. 4.

My attention was first called to this beautiful bird a few miles beyond the head of the Rio San Pedro, where we started three of them, and Major Backus succeeded in procuring a female specimen, which is now in my collection. This was the only time that I observed this bird. Capt. S. G. French, A. Q. M., U. S. army, informs me that in the year 1849, when he first passed over this road, he met with these birds in a number of localities—at the head of the San Pedro, Howard's springs, and also at the Eagle springs—showing evidently that it has a range over the country lying between the Rio Grande and San Pedro rivers. He also stated that he had never met with it near the settlements, but always among the wild, rocky, and almost barren hills of this country. They are more sociable and not so shy as others of the same family. Their food appears to be principally insects. An excellent figure and history of this handsome partridge are given in the first number of Mr. Cassin's work on the Birds of California, Texas, &c.

Genus ORTYX, Steph.

ORTYX VIRGINIANUS, Linn.—The American Partridge.
Perdix Virginiana, Wils. Amer. Orn., vol. 6, p. 21.
Perdix borealis, Temm.
Tetrao Marilandicus, Linn.
Tetrao Mexicanus, Linn, pl. enl., 149.
Ortyx Virginianus, Aud. Birds of Amer., 8 vo., vol. 5, pl. 289, p. 59.

Very common in the Indian territory and Texas, but I did not observe it west of the Rio San Pedro.

Genus CALLIPEPLA, Wagler.

CALLIPEPLA SQUAMATA, Vigors.—The Scaly Partridge.
Callipepla strenua, Wagler.
Callipepla squamata, Gould. Monog. Odont., pt. 1, pl. 19.

This beautiful species I have met with only upon one occasion as our party was passing up the Rio Grande, at the upper end of Valleverde. It was on the west side of the river, on the edge of the sand-hills, feeding among the low bushes, and was excessively shy and quick-footed. I tried a number of times to make them fly, but did not succeed; they seemed to prefer their feet to their wings as a means of escape. I was told that they are found above Santa Fé.

CALLIPEPLA ELEGANS, Less.—The Elegant Partridge.
Ortyx spilogaster, Vigors.
Callipepla elegans, (Less.) lent. de Zool., t. 61.
" " Gould. Monog. Odont., pt. 1, pl. 18.

This pretty partridge, I have been told by our officers, is found on the Rio Grande in the vicinity of El Paso.

CALLIPEPLA GAMBELII, Nutt.—Gambel's Partridge.
Lophortyx Gambelii, Nutt. Proc. A. N. Sci. Phila., vol. 1, p. 220.
Callipepla venusta, Gould. Proc. Zool. Soc., pt. 14, p. 70.
Callipepla Gambelii, Gould. Monog. Odont., pt. 1, pl. 17.

I did not see this truly elegant species until I arrived at the Rio Grande, about fifty miles below El Paso, and from there to the latter place it was extremely abundant. It is by no means a shy bird, frequently coming about the houses. I have often observed the male birds perched on the top of a high bush, uttering their peculiar, and, I might say, mournful call.

I found them in quite large flocks, feeding principally on seeds and berries, they became scarce as we approached Dona Ana, above which place I did not observe them; finding it again near the head of Bill Williams's river, then on the Yampai creek, and excessivaly abundant all along the Great Colorado. This bird, I am told, is not found west of the Coast Range in California.

About Camp Yuma, below the mouth of the Gila river, they were very abundant and tame, coming quite near the men, and picking up the grain wasted by the mules. I was there informed that great numbers of them are trapped by the Indians.

The female of this bird not having been described, I thought proper to introduce it here. Top of head dull reddish-brown; front light cinereous brown; crest shorter than the male, and consists of six brownish-black plumes; nape of neck, back, rump, upper tail coverts, and wings, dark ash brown; tail bluish-ash; chin and throat light-brown; upper parts of breast cinereous brown; lower part cream color, each feather having a lanceolate spot of brown; vent dirty white; the feathers of the flanks the same as the male, but not so bright; under tail coverts brownish-white, with broad lanceolate markings of dark brown; tertiaries have on their inner margin a yellowish-white line, giving it the appearance, when the wing is closed, of a straight line. In size the same as the male.

Genus TETRAO, Linn.

Tetrao cupido, Linn.—The Pinnated Grouse, or Prairie Hen.
Tetrao cupido, Wils. Amer. Orn., vol. 3, p. 104.
" " Aud. Birds of Amer., 8 vo., vol. 5, pl. 296, p. 93.

I have found this bird abundant throughout the Indian territory; more numerous, however, in the vicinity of the settlements.

During the fall of 1849, as we were passing down the Arkansas river, along the road leading from Fort Gibson to Fort Smith, these birds were in large flocks feeding among the oaks upon the acorns; hundreds were to be seen at the same time. It is also abundant throughout eastern Texas.

Tetrao obscurus, Say.—The Dusky Grouse.
Tetrao obscurus, Say, Long's Exped.
" " Aud. Birds of Amer., 8 vo., vol. 5, pl. 295, p. 89.
" " Bonap. Amer. Orn., vol. 3, pl. 18.
Tetrao Franklinii, Sabine.

This large grouse is found in the mountains about Santa Fé, New Mexico.

Genus CHARADRIUS, Linn.

Charadrius vociferus, Linn.—The Kildeer Plover.
Charadrius vociferus, Wils. Amer. Orn., vol. 7, p. 73.
Charadrius torquatus, Linn, Briss. Orn., vol. 5, t. 6, pl. enl. 286.
Charadrius Jamacencis, Gmel. Sloan. Journ., p. 318, t. 265, f. 3.
Charadrius vociferus, Aud. Birds of Amer., 8 vo., vol. 5, pl. 317, p. 207.

This noisy bird I found abundant in the Indian territory, and in various parts of Texas and New Mexico.

Genus GRUS, Linn.

Grus Canadensis, Temm.—The Sand-hill or Brown Crane.
Ardea Canadensis, Forst. Phila. Trans. 62, p. 409, No. 26.
Grus Canadensis, Penn. Art. Zool. 2, p. 403, No. 340.
Grus Americana, Aud. Birds of Amer., 8 vo., pl. 314, vol. 5.

This bird, which was believed by Audubon and a few others to be the young of the *G. Americana*, Linn., I have observed frequently in parts of New Mexico, more abundant, however, on the Great Colorado river, where I have seen large flocks congregated, whereas the whooping crane (*G. Americana*) I have never seen. Were this the young of that bird, should not the adult bird be occasionally seen? I have never observed a white bird among them. On several occasions I have eaten the flesh of this species, which is quite palatable.

These birds I found feeding in the low ground about the lakes and rivers; when frightened by the near approach of a man, one is sure to give the alarm and fly off: he is immediately followed by the whole flock, each one answering the cry of the other, producing anything but an agreeable noise, and circle round in the air until they get to a great height.

The *Grus Americana* appears to confine itself to the seacoast, whereas this bird is found in the interior.

Genus ARDEA, Linn.

ARDEA HERODIAS, Linn.—The Great Blue Heron.

Ardea Herodias, Aud. Birds of Amer., 8 vo., vol. 6, pl. 369, p. 122.
" " Wils. Amer. Orn., vol. 7, p. 106.
Ardea Hudsonias, Linn., Edwards's Birds, pl. 135.

Abundant on the Arkansas river; but I have seen but few in Texas or New Mexico.

ARDEA EGRETTA, Gmel.—The Great American White Egret.

Ardea egretta, Gmel. Syst. Nat., vol. 1, p. 629.
" " Aud. Amer. Orn., 8 vo., vol. 6, pl. 370, p. 132.
" " Wils. Amer. Orn., vol. 7, p. 106.

This elegant heron I observed quite abundant in portions of the Indian territory; more rare, however, in Texas.

ARDEA VIRESCENS, Linn.—The Green Heron.

Ardea virescens, Linn, Catsb. Carol, p. 80.
" " Wils. Amer. Orn., vol. 8, p. 97.
" " Aud. Birds of Amer., 8 vo., vol. 6, pl. 367, p. 105.
Ardea torquata, Mill. Illustr., pl. 60.

Abundant in the Indian territory, Texas, and New Mexico.

ARDEA CANDIDISSIMA, Gmel.—The Snowy Heron.

Ardea candidissima, Wils. Amer. Orn., vol. 7, p. 120.
" " Aud. Birds of Amer., 8 vo., vol. 6, pl. 374, p. 163.
Ardea thula, Mol.

Abundant in the Indian territory and in Texas.

Genus IBIS, Moehr.

Ibis guarauna, Linn.—The Brazilian Ibis.
Ibis guarauna, Shaw, Nat. Misc., pl. 705.
Tantalus chalcopterus, Temm. pl. col., 511

This beautiful Ibis, which is new to our fauna, I procured on the Rio Zoquete, Texas, where, however, I secured but one specimen. I obtained two others, on the Little Colorado, New Mexico; but these, I am inclined to believe, are the *Ibis Ordii*, Bonap.

Genus NUMENIUS.

Numenius longirostris, Wils.—The Long-billed Curlew.
Numenius longirostris, Wils. Amer. Orn., vol. 8, p. 23.
" " Aud. Birds of Amer., 8 vo., vol. 6, pl. 355, p. 35.

Large flocks of these birds I have frequently found feeding upon the prairies in the Indian territory and Texas.

Numenius occidentalis, Woodhouse.—The Western Curlew.
Numenius occidentalis, Woodhouse, Proc. A. N. Sc., Phila., vol. 6.

Form.—The general form and color of this bird much resemble the *N. longirostris*. The color, however, is much lighter and more rufous; the bill short, and very slender; the primaries are more pointed—their inner web is not so broad; wings extend about half an inch beyond the tail; toes short and slender.

Dimensions.—Total length of skin from the tip of bill to end of tail $16\frac{5}{10}$ inches.
Total length of bill along the ridge........ .... $4\frac{2}{10}$ "
Total length of wing from flexure..... .... $11\frac{5}{10}$ "
Total length of tarsus................................ $2\frac{5}{10}$ "
Total length of middle toe............................ $1\frac{3\frac{1}{2}}{10}$ "
Total length of tibia................................ $1\frac{4}{10}$ "

Color.—Feathers of the top of head have a broad central line of blackish-brown, terminating on either side by whitish-brown; neck light reddish-brown, the shaft of each feather being black, and terminating by a broad blackish-brown spot—those of the hind part of neck have the central line of black much broader; chin whitish; back black, with irregular reddish-brown markings, forming spots; these, as they approach the rump, become more reddish, and are broader, having much the appearance of bands; upper tail coverts reddish-brown; shafts black, with transverse black bands; the tail is slightly rounded, and consists of twelve feathers, of a reddish-brown color, with ten transverse black bands; under coverts reddish-brown; belly and thighs light reddish-brown; sides reddish-brown, irregularly marked with blackish-brown zigzag lines; the shafts of the first quills are white; the outer webs of the first three are black—of the fourth slightly mottled with reddish-brown; on their inner webs they are mixed with irregular lines of brown. The remainder of the primaries are reddish-brown, with zigzag transverse bars of black; secondaries and tertials are more black, the bands being confluent in the middle; under plumage, long axillaries, inner wing coverts bright reddish-brown; bill blackish-brown; legs and feet flesh-color; a pale superciliary line extends to the base of the bill.

Habitat.—New Mexico, upon the Rio Grande.

This remarkable species, so closely allied to the *N. longirostris* and *Hudsonicus*, but from both of which it differs very materially, I procured near Albuquerque, on the Rio Grande, on the sandbars of which stream there was a small flock feeding upon worms and insects. I only procured one specimen, not having again met with them.

Genus TOTANUS, Bechst.

Totanus flavipes, Gmel.—The Little Yellow-shank Tatler.
Scolopax flavipes, Wils. Amer. Orn., vol. 7, p. 55.
Totanus fuscocapillus, Vieill.
Totanus flavipes, Aud. Birds of Amer., 8 vo., vol. 5, pl. 334, p. 313.

Very common in the vicinity of the lakes and streams in the Indian territory, Texas, New Mexico, and California.

Totanus melanoleucus, Gmel.—The Great Yellow-shank Tatler.
Scolopax vociferus, Wils. Amer. Orn., vol. 7, p. 57.
Totanus vociferus, Swains. and Rich. F. Bor. Amer., vol. 2, p. 389.
" " Aud. Birds of Amer., 8 vo., vol. 5, pl. 345, p. 316.

I have found this bird in almost every section of the Indian territory, Texas, New Mexico, and California, wherever ponds or streams of water exist.

Totanus semipalmatus, Gmel.—The Semipalmated Tatler, or Willet.
Scolopax semipalmatus, Wils. Amer. Orn., vol. 7, p. 27.
Totanus crassirostris, Vieill.
Symphemia Atlantica, Raff.
Totanus semipalmatus, Aud. Birds of Amer., vol. 5, pl. 347, p. 324.

In the interior of New Mexico I found this bird quite abundant in the fall.

Genus TRINGOIDES, Bonap.

Tringoides macularia, Linn.—The Spotted Sandpiper.
Tringa macularia, Wils. Amer. Orn., vol. 7, p. 60.
Totanus macularius, Aud. Birds of Amer., 8 vo., vol. 5, pp. 303, 342.

Very common in the Indian territory and Texas.

TRINGOIDES BARTRAMIUS, Wils.—Bartram's Highland Snipe.
Tringa Bartramia, Wils. Amer. Orn., vol. 7, p. 63.
" " Aud. Birds of Amer., 8 vo., vol. 5., pl. 327, p. 248.
Tringa longicauda, Bechst.
Bartramia laticauda, Less.
Totanus variegatus, Vieill. Gal. des Ois., t. 239.

This beautiful yet wild bird was quite common in some parts of the Indian territory, Texas, and New Mexico.

During the month of August, 1850, whilst attached to the Creek boundary survey—Lieut. J. C. Woodruff, Topographical Engineers, commanding—in crossing the prairies beyond the Red Fork of the Arkansas, these birds were to be seen daily in immense flocks; more particularly on the portions of the prairie which had been recently burnt. They appeared to be feeding upon the parched grasshoppers, and were excessively fat.

Genus RECURVIROSTRA, Linn.

RECURVIROSTRA AMERICANA, Gmel.—The American Avocet.
Recurvirostra Americana, Wils. Amer. Orn., vol. 7, p. 126.
" " Aud. Birds of Amer., 8 vo., vol. 6, pl. 353, p. 24.

I have seen a few specimens of this curious bird in the Indian territory and New Mexico.

I have always found it wading in the shallow water of the rivers, diligently hunting worms and insects, which in this country appear to be its principal food.

Genus TRINGA, Linn.

TRINGA PECTORALIS, Say.—The Pectoral Sandpiper.
Tringa pectoralis, Bonap. Amer. Orn., vol. 4, p. 44.
" " Aud. Birds of America, 8 vo., vol. 5., pl. 329, p. 259.

Common in the Indian territory and Texas.

TRINGA PUSILLA, Wils.—The Little Sandpiper.
Tringa pusilla, Wils. Amer. Orn., vol. 5, p. 32.
" " Aud. Birds of Amer., 8 vo., vol. —, pl. 337, p. 280.
Tringa Wilsonii, Nutt. Man., vol. 2, p. 120.

This interesting little bird I have found in great numbers about the different streams throughout the Indian territory, Texas, and New Mexico.

TRINGA SCHINZII, Brehm.—Schinz Sandpiper.
Tringa Schinzii, Bonap. Amer. Orn., pl. 24, fig. 2.
" " Aud. Birds of Amer., 8 vo., vol. 5, pl. 335, p. 275.

I have met with this species at different times in the Indian territory and New Mexico.

Genus PHILOHELA, Gray.

Philohela minor, Gmel.—The American Woodcock.
Scolopax minor, Gmel. Syst. Nat., vol. 1, p. 661.
" " Wils. Amer. Orn., vol. 6, p. 40.
Microptera minor, Aud. Birds of Amer., vol. 5, pl. 352, p. 15.

This bird only came under my observation whilst in the Indian territory, and it was there quite rare.

Genus RALLUS, Linn.

Rallus Virginianus, Linn.—The Virginia Rail.
Rallus Virginianus, Wils. Amer. Orn., vol. 7, p. 109.
" " Aud. Birds of Amer., 8 vo., vol. 5, pl. 311, p. 147.
Rallus limicola, Vieill.

I procured a single specimen of this bird on the Rio Laguna, about twelve miles from its head; this was the only one which I observed.

Genus ORTYGOMETRA, Linn.

Ortygometra Carolina, Linn.—The Carolina Rail.
Rallus Carolinus, Wils. Amer. Orn., vol. 6, p. 24.
Ortygometra Carolinus, Aud. Birds of Amer., 8 vo., vol. 5, pl. 306, p. 145.

During the summer of 1850, whilst attached to the Creek boundary survey under Lieut. J. C. Woodruff, Topographical Engineers, I met with the sora rail on several occasions, on the prairies, but always near water.

Genus FULICA, Linn.

Fulica Americana, Gmel.—The American Coot, or Mud-hen.
Fulica atra, Wils. Amer. Orn., vol. 9, p. 61.
Fulica Americana, Aud. Birds of Amer., 8 vo., vol. 5, pl. 305, p. 138.

I have met with this bird quite abundantly throughout the Indian territory, Texas, New Mexico, and California; always in the vicinity of lagunas or streams.

Genus ANSER, Barrère.

Anser hyperboreus, Pall.—The Snow Goose.
Anas hyperborea, Wils. Amer. Orn., vol. 8, p. 76.
Anas cærulescens, Linn.
Anas nivalis, Forst.
Anser niveus, Briss.
Anser hyperboreus, Aud. Birds of Amer., 8 vo., vol. 6, pl. 381, p. 212.

Abundant on the coast of California.

ANSER ERYTHROPUS, Linn.—The White-fronted Goose.
Anser albifrons, Bonap. Syn., p. 376.
" " Aud. Birds of Amer., 8 vo., vol. 6, pl. 380, p. 209.

Abundant on the coast of California.

Genus BERNICLA, Steph.

BERNICLA BRENTA, Pall.—The Brent Goose.
Anas bernicla, Wils. Amer. Orn., vol. 8, p. 131.
Anser bernicla, Swains. and Rich. F. B. Amer., vol. 2, p. 469.
" " Aud. Birds of Amer., 8 vo., vol. 6, pl. 379, p. 203.

Abundant in the large streams of the Indian territory, Texas, New Mexico, and in California along the coast.

BERNICLA HUTCHINSII, Rich. and Swains.—Hutchins's Goose.
Anser Hutchinsii, Swains. and Rich. F. B. Amer., vol. 2, p. 470.
" " Aud. Birds of Amer., 8 vo., vol. 6, pl. 377, p. 198.

Abundant on the coast of California.

BERNICLA CANADENSIS, Linn.—The Canada Goose.
Anas Canadensis, Wils. Amer. Orn., vol. 8, p. 52.
Anser Canadensis, Aud. Birds of Amer., 8vo., vol. 6, pl. 376, p. 178.

Common in the Arkansas and Great Colorado rivers, also on the coast of California.

Genus AIX, Boie.

AIX SPONSA, Linn.—The Summer or Wood Duck
Anas sponsa, Wils. Amer. Orn., vol. 8, p. 97.
" " Aud. Birds of Amer., 8vo., vol. 6, pl. 391, p. 271.

This beautiful species breeds in the Indian territory and Texas. In the former country I found it very abundant.

Genus MARECA, Stephens.

MARECA AMERICANA, Gmel.—The American Widgeon.
Anas Americana, Wils. Amer. Orn., vol. 8, p. 89.
" " Aud. Birds of Amer., 8vo., vol. 6, pl. 389, p. 259.
Mareca Americana, Swains. and Rich, F. Bor. Amer., vol. 2, p. 445.

Quite abundant in the Indian territory, Texas, New Mexico, and California.

Genus DAFILA, Leach.

DAFILA ACUTA, Linn.—The Pin-tail Duck.
Anas acuta, Wils. Amer. Orn., vol. 8, p. 72.
" " Aud. Birds of Amer., 8vo., vol. 6, pl. 390, p. 266.
Anas longicauda, Briss.
Anas caudacuta, Swains. and Rich. F. B. Amer., vol. 2, p. 444.
Common in New Mexico and California.

Genus ANAS, Linn.

ANAS BOSCHAS, Linn.—The Mallard Duck.
Anas fera, Briss.
Anas domestica, Linn.
Anas curvirostra, Ball.
Anas purpureo-viridis, Schinz.
Anas Breweri, Aud. Orn. Biog., vol. 6, p. 302.
Anas Boschas, Aud. Birds of Amer., 8vo., vol. 6, pl. 385, p. 236.
Common in the Indian territory, Texas, New Mexico, and California.

Genus QUERQUEDULA, Stephens.

QUERQUEDULA CAROLINENSIS, Gmel.—The Green-winged Teal.
Anas crecca, Wils. Amer. Orn., vol. 8, p. 101.
" " Swains. and Rich. F. B. Amer., vol. 2, p. 400.
Anas sylvatica, Vieill.
Anas Carolinensis, Aud. Birds of Amer., 8vo., vol. 6, pl. 392.
Common in the Indian territory, Texas, and California.

Genus PTEROCYANEA, Bonap.

PTEROCYANEA DISCORS, Linn.—The Common Blue-winged Teal.
Anas discors, Wils. Amer. Orn., vol. 8, p. 74.
" " Aud. Birds of Amer., 8vo., vol. 6, pl. 393, p. 287.

The common blue-winged teal is found throughout the Indian territory and eastern Texas.

PTEROCYANEA CŒRULEATA, Licht.—The Western Blue-winged Teal.
Anas cyanoptera, Vieill. Azara, No. 434.
Anas Rafflesii, King. Zool. Journ., Supp., p. 29.
Very abundant throughout western Texas, New Mexico, and California.

Genus CHAULELASMUS, Gray.

CHAULELASMUS STREPERA, Linn.—The Gadwall Duck.
Anas strepera, Wils. Amer. Orn., vol. 8, p. 120.
" " Aud. Birds of Amer., 8vo., vol. 6, pl. 388, p. 254.
Chauliodus strepera, Swains. and Rich. F. B. Amer., vol. 2, p. 446.

Common in the Indian territory, Texas, New Mexico, and California.

Genus SPATULA, Boie.

SPATULA CLYPEATA, Wils.—The Shoveller Duck.
Anas clypeata, Wils. Amer. Orn., vol. 8, p. 45.
" " Aud. Birds of Amer., 8 vo., vol. 6, pl. 394, p. 293.
Anas rubens, Gmel.
Anas Mexicanus, Lath.
Anas platalea, Vieill. A. Zara., No. 471.

Very abundant in the lakes and rivers of the Indian territory, Texas, New Mexico, and California.

Genus NYROCA, Fleming.

NYROCA VALISNERIA, Wils.—The Canvas-back Duck.
Anas valisneria, Wils. Amer. Orn., vol. 8, p. 103.
Fuligula valisneria, Aud. Birds of Amer., 8 vo., vol. 6, pl. 395, p. 299.

We procured a number of these fine ducks in a laguna near Santa Isabella, California, where they are quite common.

NYROCA FERINA, Linn.—The Pochard, or Red-headed Duck.
Anas ferina, Wils. Amer. Orn., vol. 8, p. 110.
Anas rufa, Gmel.
Anas ruficollis, Scop.
Fuligula ferina, Aud. Birds of Amer., 8 vo., vol. 6, pl. 396, p 311.

Very common in California.

Genus PODILYMBUS, Less.

PODILYMBUS CAROLINENSIS, Lath.—The Red-billed Grebe.
Podiceps Carolinensis, Bonap. Syn., p. 418.
" " Aud. Birds of Amer., 8 vo., vol. 7, pl. 483, p. 324.
Colymbus podiceps, Linn.
Colymbus ludovicianus, Gmel. pl. enl., 943.

Common in the Indian territory, Texas, and New Mexico.

Genus LARUS, Linn.

LARUS BONAPARTEI, Rich. and Swains.—Bonaparte's Gull.
Larus Bonapartei, Swains. and Rich. F. B. Amer., vol. 2, p. 425.
" " Aud. Birds of Amer., 8 vo., vol. 7, pl. 442, p. 131.
Larus capistratus, Bonap. Amer. Orn., vol. 4.

I procured a young specimen of this bird at the mouth of the Red Fork of the Arkansas river.

Genus PLOTUS, Linn.

PLOTUS ANHINGA? Linn.—The American Anhinga.
Plotus anhinga, Aud. Birds of Amer., 8 vo., vol. 6, pl. 420, p. 443.
Plotus melanogaster, Lath. var.
" " Wils. Amer. Orn., vol. 9, p. 75.

The specimen of *Plotus* brought from Texas by me, I find, on comparison with specimens of the *P. anhinga*, in the collection of the Academy of Natural Sciences, Philadelphia, differs so materially in size that I have marked it with a question; at the same time, not having but the one specimen, I did not think myself justifiable in describing it until I obtained more specimens of the same kind.

These birds I found breeding on the Rio San Felipe, in Texas, early in the month of May.

Genus PELECANUS, Linn.

PELECANUS TRACHYRHYNCHOS, Lath.—The American White Pelican.
Pelecanus erythrorhyncus, Gmel.
Pelecanus onocrotalus, Bonap.
Pelecanus brachydactylus, Licht.
Pelecanus Americanus, Aud. Birds of Amer., 8 vo., vol. 7, pl. 422, p. 20.

These birds I have frequently observed in the Arkansas, Del Norte, and Colorado rivers. Common in the Indian territory, Texas, New Mexico, and California.

REPTILES.

BY EDWARD HALLOWELL, M. D.

The recent government expeditions for the purpose of determining its boundaries have advanced greatly our knowledge of the natural productions of the regions explored.

Of the species of reptiles hitherto described as inhabiting the United States, the number does not exceed one hundred and fifty, nearly the whole of which have been for the first time determined and figured by Professor Holbrook, of Charleston, South Carolina. Of these there has yet been discovered but one *testudo*—the *Test. polyphemus*, or gopher, which is found only in the south, its most northern limit being the western border of South Carolina—and two box tortoises, the *Cistuda Carolina* and *Blandigii*. Of *Emydes*, or fresh-water turtles, Professor Holbrook has figured seventeen species. Another has recently been described in the Proceedings of the Academy of Natural Sciences, by Professors Baird and C. Girard, from Oregon. It is very remarkable that no specimen of fresh-water turtle was captured by Dr. Woodhouse during his recent exploration of Texas and New Mexico. The remaining species of *Chelonians* are four, viz: *Kinosternon Pennsylvanicum*, *Sternothærus odoratus*, *Chelonura serpentina* or snapper, and *Chelonura Temminckii*, making twenty-five *Chelonians*; of these twenty-five, but three may be considered as land animals, viz: *Test. Polyphemus*, *Cistuda Carolina*, and *Cistuda Blandigii*. The *Cistuda Carolina* is found from one end of the Union to the other; the *Blandigii* has as yet been discovered only in Illinois, Wisconsin, and Massachusetts. Of the *Emydes*, *serrata*, *reticulata*, *Floridana*, *Mobilensis*, and *concinna*, are exclusively southern; the *Mulenbergii*, *rubriventris*, *picta*, *guttata*, *terrapin*, or *palustris*, are more or less common in the north, but only two of them exclusively, viz: *Mulenbergii* and *rubriventris*, and these, according to Dr. Holbrook, have a very limited range, the first having been found only in New Jersey and eastern Pennsylvania; the latter, neither north of the river Delaware nor south of Chesapeake bay; *picta*, *guttata*, and *terrapin* have a very wide range, the first having been observed from Maine to Georgia; the second, according to Major Leconte, over the whole of the United States. *Insculpta* is a northern animal, while *geographica*, *pseudo geographica*, *hieroglyphica*, *Cumberlandensis*, *Troostii*, and *Oregoniensis*, are found in our western States, but not in the south, and the first only in the north (Lake Erie.) The *Kinosternon Pennsylvanicum* is not seen north of lat. 41°, but is abundant in the west. *Sternothærus odoratus* is found from Maine to Florida, and probably in all our western States. *Chelonura serpentina* exists in nearly all parts of the Union; while *Temminckii* is confined to the Mississippi and its tributaries, and to some of the rivers of Alabama that enter into the Gulf of Mexico. Two species of soft-shell turtle have been as yet described, the *Trionyx ferox* and *muticus*. The first has a very wide range; the other has been observed only in the Mississippi and its tributary streams. There are three species of *Chelonians* proper, one of *Sphargis* and one of *Alligator*, which has been erroneously stated by European naturalists to exist throughout the whole extent of the United States, having never been found north of lat. 35°. According to Prof. Holbrook, nine-tenths of the territory belonging to the United States east of the Rocky mountains is uninhabited by this animal. Several new species of *Crotaphytus*, Holbrook, have recently been described by Professors Baird and Girard, in the Proceedings of the Academy of Natural Sciences, one only having before been known, viz: the *Agama collaris* of Say. Of *Phrynosoma* four well-known species inhabit North America, viz: *cornutum*, *coronatum*, *Douglassii*, and *orbiculare* of Weigmann; to these I have added a fourth—*Phryn. planiceps*—which closely resembles the *cornutum*, but differs from it in having smooth scales upon the abdomen. There are also the *Phryn. modestum* and *platyrhynos* of Girard. These remarkable animals are exclusively American, and are confined to the western and southern portions of our country. The new genus *Anota* is closely allied to them, but differs in having its ears concealed by the integument. Several new species of *Cnemidophorus* have been added by Professor Baird to the one already known (*Ameiva sexlineata*,) an exclusive inhabitant of the southern States, and also a new *Plestiodon*, a genus never observed in the north.* The *Lygosoma lateralis* has been found only in the south and west. That remarkable animal the *Ophisaurus ventralis*, or glass-snake, also exclusively American, although found in the north as far as Michigan, is much more abundant in the south and west. The number of *Saurians* known to inhabit the United States appears to have been comparatively few, not more than fourteen species being enumerated and figured by Professor Holbrook; but more recently, numerous additions have been made by Professors Baird and Girard, not less than nineteen new species having been published by them, as found in the recent exploration of Col. Graham, more than all formerly known to exist in the whole United States. The most remarkable of those recently discovered is the new genus *Holbrookia*, or *Cophosaurus* of Troschel, characterized chiefly by its concealed ears.

Of the *Ophidians* there are four genera of poisonous serpents, including ten species, to which must be added the *Crotalus Lecontei* described in the following paper. Of the poisonous species there are seven rattlesnakes, four *Crotali* proper and three *Crotalophori*, three species of *Trigonocephalus*, including the water-moccasin and the copperhead, and one species of *Elaps*. The *Crotalus durissus*, the most common of the rattlesnakes, is found in nearly all parts of the United States; the *adamanteus* and *Oregonus* have a very limited range, the one being a southern animal, not found north of Carolina; the other having yet been observed only on the banks of the Oregon and Columbia rivers. The *Crotalophorus tergeminus* is found near the sources of the Missouri; the *kirtlandii* only in the States of Ohio and Michigan. The water-moccasin has not been found north of the Pedee river, in North Carolina; it has been observed in Tennessee. The *Trigonocephalus contortrix*, or copperhead, is one of our most common venomous serpents, being found from New England to Middle Florida, inclusive, and from the Atlantic to the Alleghanies. The *atro-fuscus* has as yet been seen only in Tennessee: the *Elaps fulvius* inhabits the southwestern and western States, but is not seen in the north. Of the non-venomous serpents thirty-seven species are described and figured by Professor Holbrook, to which numerous others have been added recently. Of these, two are water-snakes, to which *Tropidonotus rhombifer*, *transversus*, some *parietalis* of Say, *concinnus*, and others, are to be added. The *Coluber Cooperi* has a very limited range, having been found by Mr. Cooper "only in the dry pine-hills south of the Altamaha, never having been met with in the low grounds even of the same vicinity, while the *eximius* and *punctatus* are distributed over a large part of the Union. The *guttatus* is a southern animal; the *obsoletus* and *testaceus* are found on the borders of the Rocky mountains. The *constrictor* or common black snake is seen in nearly all parts of the United States, and "may be regarded as the most common of our serpents." The *Coluber vernalis* is exclusively a northern animal; *Psammophis flagelli-formis*, or the coachwhip snake, exclusively southern. Of the *Batrachia* twenty-four species are figured, of which seven belong to the genus *Rana*, two to *Cystignathus*, one to *Scaphiopus* (Holbrook,) five to *Hyla*, three to *Hylodes*, five to *Bufo*, and one to *Engystoma*. This number will have been considerably increased by species described by Prof. Baird and Girard, and by one in the following paper:

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* I have recently found a specimen of *Plestiodon quinquelineatum* in New Jersey.

Of the *Salamandridæ* there are figured twenty-three species, including five of the genus *Triton*. Of those remarkable genera, *Amphiuma*, *Menopoma*, *Siren*, and *Menobranchus*, there are nine species, two of *Amphiuma*, two of *Menopoma*, three of *Siren*, and two of *Menobranchus*. The *Amphiuma* and *Siren* are exclusively southern; the *Menopoma* and *Menobranchus* are found in our western waters. The species of reptiles said by M. Schlegel to be common to both North and South America, do not exist among us.[*]

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[*] For the greater part of the information contained in the above remarks, I am indebted to the valuable work of Professor Holbrook, "North American Herpetology; or, a Description of the Reptiles inhabiting the United States." Quarto, Philad., 1842. [Since the above was written, a work upon serpents has appeared by Prof. Baird and C. Girard, which contains indications of many new genera, and descriptions of numerous species.]

Order SAURIA.

Genus SCELOPORUS, Weigmann.

GEN. CHAR.—Head short, subtriangular, rounded in front, and covered with small plates; no palatine teeth; tongue obtuse in front, slightly notched, covered with minute papillæ; lips furnished with a double series of oblong plates; nostrils open in a single plate, surrounded by smaller scales; tympanum depressed in the meatus, which has its anterior border more or less denticulated; neck below smooth, but with an oblique depression on each side; body short, depressed, and covered with large carinated and imbricated scales above, and with smooth plates upon the abdomen; tail very long, large, and depressed at its base, rounded toward its tip; neither dorsal nor caudal crest; there are femoral, but no anal, pores.

SCELOPORUS DELICATISSIMUS, Hallowell.

SP. CHAR.—Four plates behind the rostral and between the nostrils, the two first much smaller than the latter—nine upon the frontal region, in two rows, (four in front and five posteriorly;) behind these five plates, without a central pentagonal one; snout somewhat obtuse; body more slender than that of *marmoratus*; scales *bi-punctate* posteriorly.

Description.—The head is rounded above, depressed in front; the snout angular, rounded anteriorly; the rostral plate is triangular, much more extended in a transverse than in the opposite direction. The snout and frontal region are covered with numerous small polygonal scales, of which there are four between the nostrils, or rather between the small plates in contact with them, which are most remarkable; the posterior of these are much the larger. The nostrils are lateral and circular, looking outward and upward, each in a single projecting scale, surrounded by other scales, which differ more or less in size and shape. The nostrils are rather less than a line apart, and are situated just within the border of the supraciliary ridge. Immediately behind the small polygonal plates, upon the frontal region, (nine in number, four in front and five posteriorly,) is a transverse row of three large plates, the outer ones quadrilateral, and much larger than the intermediate one, which is more or less triangular, the apex of the triangle pointing backward. The anterior interorbitar plates are pentagonal, broader anteriorly, and much more extended in the antero-posterior than in the transverse direction. The posterior interorbitar is indistinctly hexagonal, longer than broad, and single. The occipital plate is quite large, pointed in front, truncate behind; it is surrounded with scales, of which those in front are much the larger. There are six or eight hexagonal scales, constituting the supraciliary ridge; they are bordered internally with a single row of small scales, and externally with a double row of the same dimensions, and similar shape. The eyelids are covered with small granular scales. The upper jaw is margined with ten narrow transverse plates, and the lower with an equal number. The auditory apertures are very distinct, semilunar, bordered in front with a row of slender pointed scales.

The neck.—There is no gular fold, but a well-marked fold exists on each side of the neck, between the foramen auditorium and the scapula; scales upon the chin and throat smooth—those upon the throat rounded posteriorly; scales upon the abdomen smooth, rhomboidal—those upon the under part of the tail pointed posteriorly, and strongly carinated, except towards the anus; two large and smooth scales a short distance in front of the vent, and two smaller ones; scales upon the under surface of the extremities smooth—those upon the abdomen also smooth, pointed posteriorly; scales upon the back of the neck, dorsum, and upper part of the tail, strongly carinated, the points of the carinæ projecting slightly beyond the scales—the posterior margins bi-punctate; scales upon the back much larger than those upon the sides; upper surface of extremities covered with carinated scales; palms of the anterior and posterior extremities protected by small carinated and rhomboidal ones—those of the fingers transverse; ten distinct pores may be counted upon each thigh—none in front of the anus.

Coloration.—General color above bluish-gray, with a series of dark-colored spots on each side; a bluish colored vitta extending on each side of the neck and along the back; an oval space of a bluish color upon each side of the abdomen, margined with black, the marginations extending from the groins to the axillæ, and upon the flanks; upper part of the tail grayish; throat and under surface of extremities bluish; under part of tail white.

Dimensions.—Length of head, 6 lines; greatest breadth, 4 lines; length of neck and body to vent, 1 inch 5 lines; of tail, 3 inches 2 lines; of anterior extremities, 10 lines; of posterior, 1 inch 4½ lines; total length, 5 inches 1 line.

Habitat.—San Antonio, Texas.

SCELOPORUS MARMORATUS, Hallowell.

SP. CHAR.—Two small plates behind the rostral and between the nostrils, the two first more or less linear; six plates upon the frontal region; behind these five plates, surrounding one which is pentagonal; posterior to these, midway between the supraciliary ridges, a single large hexagonal plate, (interorbitar;) snout rather pointed, more narrow than in *delicatissimus;* body slender, scales bi-punctate posteriorly.

Description.—The head of this species is more depressed than that of the preceding, and the snout is longer and more pointed; there is also a marked difference in the form and arrangement of the scales upon the frontal portion of it; the rostral plate is triangular and narrow, broad at its base; immediately behind it are two small, narrow, oblong plates, in contact with which posteriorly are two other broader polygonal ones, situated between the small plates, in contact with the nostrils. The nostrils are small and circular, looking upward and outward, and backward. Behind these four internasal plates are four which differ in size and shape; the two anterior are the smallest. These plates are arranged in a semicircular row; behind this row are five, with one in the centre, which is pentagonal. The posterior interorbitar is single, and is more or less pentagonal in shape. Five distinct plates may be counted upon the supraciliary ridge; these plates are bordered above and below with small plates of irregular size. The eyelids are covered with small granular scales. The occipital plate is large and pentagonal; eight scales, more or less quadrilateral, border it anteriorly, and upon its sides; seven narrow oblong plates margin the upper jaw on each side, and five are observed upon the lower. The mental plate is small and triangular: immediately behind it are two plates of about equal dimensions, their external and posterior angle terminating in a point. The aural apertures are oval, presenting several small scales along their anterior border. Scales upon the back carinated, the carinæ extending slightly beyond the extremities of the scales, which present two minute denticulations posteriorly. The scales upon the neck are smaller than those upon the back; those at the base of the tail are the largest; scales of the extremities carinated upon their upper surface. Ten or eleven pores may be counted upon each thigh, not extending beyond it.

Coloration.—Olive-green above, with a row of indistinct dark-colored spots on each side of the back and upper part of the tail; a narrow band of light-blue on each side of the back and neck, extending from the temples as far as the root of the tail; a black longitudinal blotch along the sides of the body, reaching from the anterior to the posterior extremities, coalescing with a narrow band of the same color upon the abdomen; these bands are separated from each other upon the belly by a thin strip of white; the enclosed space on each side is light olive-green; chin light azure; throat and under part of neck silvery white; under part of extremities and tail white.

Dimensions—Length of head, 6½ lines; greatest breadth, 4 lines; length of neck and body, 1 inch 4½ lines; length of tail, 2 inches 10 lines; length of posterior extremities, 9 lines; of anterior, 9 lines; total length, 4 inches 9 lines.

Habitat.—San Antonio, Texas.

Genus PLESTIODON, Dumeril and Bibron.

GEN. CHAR.—Nostrils opening in the middle, or almost the middle of the nasal plate; two supero-nasal plates; palate with a median groove, enlarged at its anterior extremity; pterygoid teeth; scales smooth.

PLESTIODON OBSOLETUM, Baird and Girard.

SP. CHAR.—Head of moderate size, slightly swollen at the temples; a freno-nasal plate; ears oval in shape, vertical, with three small scales upon their anterior margin; the upper surface of head, body, extremities, and tail, dun or fawn-color; the scales tipped with black posteriorly; under surface silvery white.

Description.—The head is of moderate size, but slightly swollen at the temples, somewhat depressed above; the rostral plate is heptagonal, its general appearance resembling that of a triangle, rather more extended transversely than antero-posteriorly; the supero-nasal are contiguous and more or less quadrilateral; the freno-nasal is a very small plate, placed between the nasal and the anterior frenal; the inter-nasal is hexagonal, broader than long; it is in contact with the supero-nasal, the anterior frenal, and the fronto-nasal plates; the fronto-nasal are pentagonal, their inner margin the smallest; the frontal is hexagonal, long, more narrow behind, excavated laterally; the fronto-parietal are pentagonal, their external margin the longest; the inter-parietal is much broader in front, presenting an acute angle posteriorly; the parietal are quite large, pentagonal; there are three temporal plates, of which the one near the posterior angle of the eye is the smallest; it is quadrangular in shape, the posterior angle being somewhat rounded; the anterior frenal is more or less quadrangular, more extended vertically than in the transverse direction; the second frenal is pentangular, more extended transversely than vertically; there are two freno-orbitar plates, of which the posterior is much smaller than the anterior; the nostrils are placed in a single plate, on the sides of the snout, and look outward and upward; several plates margin the upper jaw, of which the two posterior are the largest; there are five plates on each side of the lower jaw; the mental plate is about twice as broad as it is long; the eyelids are bordered each with a row of quadrangular scales; the rest of their surface is covered with small granules; the ears are oval, having three small scales along their anterior margin; scales smooth, hexagonal, imbricated; a row of hexagonal scales upon the under part of the tail, resembling those of serpents.

Coloration.—Head above ash-colored; marginal plates of upper jaw bordered with black posteriorly; body above drab-colored; color lighter upon the tail and the posterior extremities; the posterior margins of the scales upon the upper part and sides tipped with black; the black margin appears less distinct upon the scales upon the upper part of the neck; chin, throat, abdomen, under part of tail, and extremities, silvery white.

Dimensions.—Length of head, 9 lines; breadth, 5¼ lines posteriorly; length of body, 2 inches 10 lines; length of tail, 3 inches 10 lines; length of anterior extremities, 10½ lines; of posterior, 1 inch 5 lines. Total length, 7 inches 5 lines.

Habitat.—Near the Rio San Pedro, Texas.

Genus LAMPROSAURUS, Hallowell.

Gen. char.—Head conical, pointed, rostral vertical, the supra-nasals, one on each side, contiguous; internasal large; nostrils between two nasal plates; two fronto-parietals; tympanum depressed; a few small scales in front of the ear; no gular fold, or fold upon the neck; body and extremities slender; toes 5-5; scales smooth and shining, similar upon back and abdomen, rounded posteriorly; eyelids ——; prœanal scales large; no femoral pores; no palatine or sphenoidal teeth.

LAMPROSAURUS GUTTULATUS.

SP. CHAR.—For specific characters, see account of color in the description. Add total length, 2 inches 6 lines.

Description.—The head is elongated, conical, and pointed, rounded above and in front; the rostral plate is vertical, pentangular, not grooved inferiorly, a little larger apparently in the vertical direction than transversely; there are two nasal plates, with the nostril between them; there are two supra-nasals, one on each side, contiguous, rhomboidal; the internasal is large, in contact laterally with the supra-nasal and the freno-nasal plate, in front with the supero-nasal, posteriorly with the fronto-nasal; the fronto-nasal are pentagonal, larger than the supero-nasal, their internal angle prolonged: they are in contact anteriorly with the internasal and the freno-nasal, laterally with the freno-orbitar, and the anterior supra-orbitar, posteriorly with the frontal; the frontal plate is long and hexagonal, broader in front, excavated laterally; the fronto-parietal are large and quadrilateral, larger than the fronto-nasal; the interparietal is broad and rather short, rounded posteriorly, the anterior angle passing in between the fronto-parietals; the parietal are large; there are five supra-orbitar plates, the third the largest; there are seven superior labials on one side, and eight on the other, the last the largest; body and extremities slender; tail, according to Dr. Ham mond, nearly as long as the body, (mutilated in the specimen;) fourth toe much longer than the third, and stouter; third and fourth fingers of nearly equal length; body covered above with smooth imbricated scales, broad and rounded posteriorly; the scales upon the abdomen are similar to those upon the back; no femoral or anal pores: chin, throat, and extremities covered with smooth imbricated scales.

Color.—Body and upper surface of extremities black; a row of seven or eight white spots along the margin of the upper jaw; a row of white spots along the inferior margin of the supra-orbitar plates, continuous with which row is a white spot upon the fronto-nasal, and another upon the parietal plates; the rest of the upper surface, sides, and front part of the head is jet black, with the exception of a small white spot along the upper margin of the third supra-orbitar, and one which is indistinct upon the freno-nasal plate; chin black; throat, abdomen, and under surface of extremities iron-gray, with a shining lustre.

Dimensions.—Length of head, 4 lines; greatest breadth, 2¼ lines; length of neck and body, 1 inch; length of anterior extremities, 5 lines; of posterior extremities, 6¾ lines; of tail, about 1 inch 2 lines.

Habitat.—New Mexico, Fort Fillmore, below the Jornada del Muerto; found also at El Paso; rare, Dr. Hammond having seen but two specimens. The specimen above described was found by Dr. Hammond, surgeon of the United States army, and presented by him to the Academy of Natural Sciences of Philadelphia.

Genus ELGARIA, Gray.

GEN. CHAR.—Head pyramidal, shielded; internasal large, rhombic; supra-nasals, 2 pair, very narrow, band-like; fronto-nasal and fronto-parietal six-sided, equal; the occipital plates scale-like; scales of the back and tail slightly keeled; limbs feeble; toes 5-5; tail slender, tapering, much longer than body.

ELGARIA MARGINATA.

SP. CHAR.—Head and upper part of body and tail olive-colored; a few minute points along the middle line of the back; nine or ten transverse bars of black along the sides, their posterior margin bordered with white; under-surface greenish-olive, immaculate.

Description.—The head is rather long, rounded above and upon the temples; the rostral plate is rounded in front, broader than long, more or less pentagonal; there are two supero-nasals on each side of the head, long and narrow; the internasal is large, broader than long, rhomboidal; the fronto-nasal and the fronto-parietal are of nearly equal size, more or less pentagonal; the frontal plate is long and slender, much excavated laterally, heptagonal; interparietal hexagonal, much broader in front than posteriorly; parietal large; there are three occipital plates, resembling scales; there are five large supra-orbitar plates, of which the second is larger than either of the others; behind these plates and the superior margin of the upper eyelid are two rows of small scales, six in the lower and three in the upper row; the temples are covered with numerous scales; the nostrils are situated widely apart, between the two nasal plates; there is a small narrow freno-nasal; the anterior frenal plates are small and more or less quadrangular; the posterior is much larger, extending upward upon the front part of the head, where it is in contact with the fronto-nasal and the internasal; the freno-orbitar is quite small, broader above; eleven plates margin the upper jaw on one side (the left) and twelve the other, the posterior the largest; the eyes are of moderate size, the eyelids covered with small granulations; body and limbs quite slender; tail longer than the body; neck without a fold; body covered upon the back and sides with rhomboidal scales, each having a distinct carina in the middle; scales of chin, throat, abdomen, and under part of tail smooth; scales of tail arranged in circular rows, carinated above and upon the sides.

Coloration.—Upper part of head, body, and tail olive-color; seven or eight small black spots along the middle line of the back; a series of dark-colored transverse bands along the sides, margined with white posteriorly; a dark-colored band along the temples, extending across the sides of the neck; extremities above dark olive; chin, throat, abdomen, and under part of extremities silvery white with a slight tinge of yellow, maculated with numerous small dark-colored spots.

Dimensions.—Length of head, 4¾ lines; greatest breadth, 2 lines; length of neck and body to vent, 1 inch; length of tail 1 inch, (mutilated;) length of anterior extremities, 4½ lines; of posterior, 6¼ lines.

Habitat.—New Mexico, west of the Rio Grande.

Genus CROTAPHYTUS, Holbrook.

GEN. CHAR.—Head short, sub-triangular, rounded in front, and covered with small plates; no palatine teeth; tongue obtuse in front, slightly notched, covered with minute papillæ; lips furnished with a double series of oblong plates; nostrils open in a single plate, surrounded with small scales; tympanum depressed in the meatus, which has its anterior border more or less denticulated; neck below smooth, but with an oblique depression on each side; body short, depressed, and covered with large carniated and imbricate scales above, and with smooth plates upon the abdomen; tail very long, large, and depressed at its base, rounded toward its tip; neither dorsal nor caudal crest; there are femoral, but no anal, pores.—*Holbrook.*

CROTAPHYTUS FASCIATUS, Hallowell.

SP. CHAR.—Head of moderate size, triangular, slightly swollen at the temples; body slender: anterior extremities *idem*; tail nearly three times as long as the body, (including neck and extending to vent;) body covered with small granulations, ash-colored, with seven or eight narrow transverse bands upon the back, of the color of vermillion; bands of a similar color upon tail; legs banded; abdomen covered with quadrangular scales; femoral pores in the male very distinct.

Description.—The head is subtriangular, rounded in front, slightly swollen at the temples, covered above with polygonal tubercles, larger anteriorly: a row considerably larger than the rest runs along the middle line of the front part of the head, midway between the nostrils; these tubercles are much smaller and of more uniform size upon the temples; they are also small over the orbits; the occipital plate is of moderate size and rather indistinct; the supraciliary ridges are well developed; the external margin of the eyelid is bordered with a row of quadrangular scales, external to which is another row upon the lower lid with pointed extremities, presenting a well marked denticulation; the lids are covered with minute granulations; the nostrils are large, oval, lateral, looking outward and slightly backward, situated in a single scale; the rostral plate is narrow, quadrangular, much more extended transversely than in the vertical direction; the upper jaw is bordered with a row of seventeen plates: the external opening of the ear is very apparent, oval, its anterior border presenting a few small denticulations; neck folded; body slender, covered above with small granulations, rather larger upon the back than upon the sides; anterior extremities slender; posterior well developed, both covered above with granulations, rather larger in front than posteriorly; several rows of small plates along the margin of the lower jaw; chin and throat covered with small granulations; abdomen covered with smooth hexagonal and quadrangular scales; anterior surface of arms and forearms covered with small granulations—of thighs and legs, with scales similar to those upon the abdomen; femoral pores very distinct; no anal ones; a row of large scales behind the vent in the male; tail very long and slender, posteriorly covered with smooth quadrangular scales near its root, hexagonal posteriorly; these scales are distinctly verticillate throughout the greater part of the length of the tail, less so anteriorly, and carinated both anteriorly and posteriorly, except within about two inches of its root; femoral pores very distinct.

Coloration.—Head of the specimen examined of a light yellow color, with numerous small brown spots disseminated upon its surface; a dark-colored bar upon the temples, between the orbit and ear; chin and throat marked with dark-colored lines and blotches; body ash-color above, presenting numerous small points upon its surface, and marked with transverse bars of a vermillion-color during life; upper surface of extremities resembling in color that of the abdomen; the thighs, and more especially the legs, marked with transverse bars of a vermillion-color during life; abdomen flesh-color; tail ash, beautifully banded with transverse fasciæ of vermillion.

Dimensions.—Length of head, 10½ lines; greatest breadth, 7 lines; length of neck and body, 2½ inches; length of tail, 6½ inches; of anterior extremities, 1 inch 5 lines; of posterior, 2 inches 5 lines.

Habitat.—Sand-hills at the lower end of the Jornada del Muerto, New Mexico.

Remarks.—This animal differs from the *Crotaphytus Wizlizenii* of Professors Baird and Girard, in the size and shape of the head, that of *Wizlizenii* being about a quarter of an inch longer; the latter is also broader, and the snout less pointed; the neck also in fasciatus is much more contracted, and the body and both anterior and posterior extremities are much less robust. In addition to these distinguishing characteristics, sufficient of themselves to separate the two animals, there exist in fasciatus seven or eight narrow transverse bands, of a light vermillion-color, upon the back, which are not observed in the other species.

Genus HOMALOSAURUS, Hallowell.

GEN. CHAR.—Head depressed, covered above with polygonal scales; nostrils superior; occipital plate distinct; temples not swollen; marginal plates of the upper jaw imbricate; external openings of the ears; throat folded; upper surface of neck, body, and tail, covered with granulations; abdomen and under surface of tail with smooth quadrangular scales; femoral pores; tail but little longer than the body; body and extremities slender.

HOMALOSAURUS VENTRALIS.

SP. CHAR.—Head silvery white, with a tinge of yellow; body above ash-colored, thickly maculated with small white spots irregularly disposed; transverse dark-colored bars upon the posterior extremities and base of tail; abdomen silvery white, with two longitudinal blue-colored blotches having two oblique bars of black running across them; two small blue spots upon base of tail.

Description.—The head is of moderate size, rounded above, not swollen at the temples; it presents a small rostral which is more or less triangular, with the exception of the occipital, which is very distinct, and somewhat circular in form; the upper part of the head is covered with polygonal scales of various sizes, larger upon the front part of the head, smaller over the eyes; the nostrils are oval, superior, placed in a single scale, and look upward and outward; they are a line apart, and a line distant from the anterior extremity of the snout; a row of longitudinal scales, five or six in number, placed one above the other, constitutes the supraciliary ridge; the eyelids are covered with numerous small granulations; the inferior border of the upper is bordered with a row of small quadrate scales; the superior border of the lower is strongly denticulated; temples covered with polygonal scales of various sizes; the superior margin of the upper jaw is protected by a row of seven or eight plates, of which the two or three last are smaller than the others; these scales present a rounded edge upon their external border, and are placed one above the other; the lower jaw is margined with about twenty-seven or twenty-eight small plates; behind these is a row of larger ones, the interspace being filled up with polygonal scales of various sizes; chin and throat covered with smooth granules, larger upon the chin; ears oval, with a tympanum beneath the level of the surrounding surface; the anterior margin of the ear presents several small tubercles, and upon its anterior border is observed a row of scales considerably larger than those upon the temples; neck but slightly contracted; body long and rather slender, covered with numerous small and smooth rhomboidal granulations, larger upon the back than upon the sides; tail covered with similar granulations, but larger, having more the form of scales; there are two distinct folds upon the throat and neck, the inferior one extending over the shoulder; the abdomen is covered with smooth quadrangular plates; the plates upon the anterior part of the shoulder are larger than the rest, and terminate in a point; upper surface of arms covered with scales, many of which appear to be distinctly carinated; the carinæ are more distinct upon the arms, the scales terminating in a point; thighs covered above with small and smooth granulations of nearly equal size; legs with slightly carinated scales; scales of hands and feet above smooth, of nearly equal size; under part of arms covered with smooth scales; upon the forearm they are less slightly carinated; the scales upon the legs are much larger than those upon the inner and posterior surface of the thighs; those of the soles of the feet more or less smooth—of the palms, for the most part carinated; the fingers and toes are covered with imbricated scales; they are distinctly carinated upon the under surface; fourteen very distinct pores may be counted upon one thigh, and fifteen upon the other; there are five fingers and as many toes to each of the extremities; of the fingers the fourth is somewhat longer than the third; of the toes the second is much longer than the third, being about ten lines in length; there are two large and smooth scales posterior to the anus, with two small ones between them.

Coloration.—The head is of a uniform white color, slightly tinged with yellow; the ground color of the body above is ash, presenting numerous white or slightly yellowish-colored spots, disseminated over its surface, of unequal size, and disposed in an irregular manner; upper surface of anterior extremities silvery white; tail and posterior extremities above white, with a yellow tinge, and clouded with transverse dark-colored blotches; under surface of extremities and chest silvery white; two small blue spots near the base of the tail; on each side of the abdomen is a blue longitudinal blotch or bar, with two oblique ones of a deep raven black, their broadest part presenting inward; these dark-colored blotches are about a line apart.

Dimensions.—Length of head, 7½ lines; greatest breadth, 6 lines; length of neck and body to arms, 2 inches 2½ lines—of tail (in the specimen examined, which appears to have been mutilated and restored,) 2 inches 3 lines; body, 1 inch 5 lines in circumference; length of anterior extremities, 1 inch 7½ lines—of feet, 1 inch 2 lines; total length, 5 inches 1 line.

Habitat.—New Mexico.

Gen. remarks.—This animal approaches *Crotaphytus*, but the nostrils are superior instead of being lateral, as in the latter genus. The head of *Crotaphytus* is covered with tubercles, and the occipital plate either does not exist or is small and ill-defined; the temples are less swollen than in *Crotaphytus*, which has but a single row of plates along the border of the lower jaw: the forearm is shorter and much more robust, and the longest fingers are of nearly equal length in *Crotaphytus*. In *Homalosaurus*, the fourth finger is considerably longer than the third. The nostrils in *Holbrookia* are situated as in *Homalosaurus*, and the plates along the margin of the upper jaw have the same configuration and arrangement; the plates along the under jaw also resemble those of *Homalosaurus*, and the occipital plate is very distinct, which, as well as most of the plates upon the upper part of the head, is smooth; a considerable number of granulations, however, are observed above the supraciliary ridge, at its anterior and posterior part, chiefly in the former position, but in *Holbrookia* there are no external ears, the ear lying immediately behind the integument which covers it. Both *Holbrookia* and *Crotaphytus* have femoral pores, but no anal ones, of which also *Crotaphytus* is destitute.

Genus PHRYNOSOMA, Weigmann.

GEN. CHAR.—Head short, rounded in front, bordered at the sides and behind with spines more or less elevated, covered above with small, polygonal, nearly equally-sized plates; nostrils lateral near the snout, and opening in the middle of the nasal plate; margin of the external meatus of the ear simple; tynpanum visible, but depressed; throat with a transverse fold; body short, oval, much depressed, with a denticulated margin at the flank, and covered above with trihœdral tubercles arising from among small, imbricated scales; neither spinal nor caudal crest; extremities short, denticulated at their borders; fingers or toes, five to each extremity; a range of femoral pores more or less developed; tail hardly the length of the body, and flattened at its base.—*Holbrook.*

PHRYNOSOMA CORNUTUM, Harlan.

SP. CHAR.—Body compressed, covered above with polygonal scales and sharp-pointed tubercles: head small; occiput surrounded with numerous spines; abdominal scales carinated; a row of pores on the under surface of each thigh in the males.

Description.—Head small, short and thick, truncated, oblique in front, with a well-developed ridge on each side of it, commencing at the outer margin of the nostrils, and terminating in a small spine or tubercle; nostrils large and distinct, surrounded with a series of narrow scales; head covered above with numerous polygonal scales of unequal size, assuming, upon the occiput, more or less the form of pointed tubercles; occipital plate large; occiput bordered posteriorly with a row of spines, nine in number, increasing in size until the fourth, which are the longest, and have a very small one placed between them; ears small and sunken; mouth small; inferior margin of lower jaw bordered with a row of spines seven in number, increasing in size until the last, which is more pointed than the rest; rostral plate small and pentagonal, longer in its transverse than in its antero-posterior direction; nostril-plate very narrow, with the opening for the nostril in its centre placed near the snout, looking upward and outward; pupil black; iris dark gray(?) there are about twelve small quadrilateral plates upon the margin of the upper jaw, the posterior smaller than the rest; about the same number upon the lower, larger and more distinct than upon the upper; between these and the row of spines above mentioned are two series of small scales, the superior of which alone occupies the angle formed by their convergence anteriorly; upon the outer margin of the depression in which the eye is placed is a semicircular row of pointed tubercles, the largest of which is just in advance of the first occipital spine. This row commences somewhat in advance of the angle of the lower jaw, nearly midway between its inferior margin and that of the orbit, and terminates in the spine or pointed tubercle at the posterior extremity of the supraciliary ridge; the space upon the labial portions of the occiput between this ridge and the large pointed spines upon its posterior border is occupied with numerous small polygonal scales of nearly equal size, those in the middle being somewhat larger than the rest; teeth small; external meatus of the ear rather large and oval; a line drawn from the base of the spine which terminates the inferior margin of the lower jaw posteriorly to the base of the third occipital spine would pass through its middle. The under surface of the chin is covered with small rhomboidal scales of nearly equal size; towards its outer margin on either side is a row of pointed scales, longer than the rest, running nearly in the same direction with those upon the margin of the lower jaw, but separated from them by several rows of smaller scales; neck short, folded transversely, and upon the sides; the folds upon the sides (the inferior more especially) are more or less protected by sharp spines. Body short, much flattened, rounded at the sides, covered above with small rhomboidal carinated and polygonal scales, and with numerous pointed tubercles of unequal size. The vertebral line is occupied by about four rows of small polygonal scales, and has a flattened appearance; on either side of it are several rows of pointed tubercles of unequal size and irregularly disposed, each of which is surrounded by others similar in form, but of smaller dimensions, and offering less resistance than upon the back. Two series of spines extend from the shoulder to the thigh along the margins of the abdomen, the upper of which is the larger of the two. The space between them is covered with scales resembling those between the folds of the neck and thighs; thorax and abdomen covered with large rhomboidal and carinated scales; those upon the thorax are very distinct; tail short, broad at its base, and flattened, covered above with carinated scales and tubercles; the carinæ are more developed posteriorly; under surface also covered with rhomboidal and carinated scales; the carinæ are very distinct except toward the base, where they are less so; vent transverse, with several rows of small scales before and behind, more numerous posteriorly; anterior extremities well developed, covered above with strongly carinated and pointed spines; scales below smaller than those above, not terminating, like them, in a sharp point; they are also carinated, but the carinæ are less distinct than those above, more especially on the inside of the humerus, where they are nearly smooth. There are five fingers, each furnished with a short and recurved nail. Posterior extremities slender and longer than the anterior, covered above with carinated scales and pointed tubercles; scales below rhomboidal and moderately carinated; those upon the posterior surface of the thigh smaller and more irregular in shape than the rest, but, like them, distinctly carinated. There are five distinct toes, of which the fourth is the longest, each furnished with a short and curved nail. There are about ten or twelve pores on the inferior surface of each thigh, well developed.

Color.—Head ash-color above; a transverse line of black extending from the base of the pointed spine, which terminates the supraciliary ridge posteriorly, to the base of the spine, upon the opposite side. In advance of this are two other transverse black lines, somewhat broader than the first. A dark-colored bar extends from the inferior margin of the eye to the angle of the mouth; it is much broader below than above. Another bar extends from the posterior and inferior margin of the eye, across the lower lid, to the base of the two anterior of the occipital spines, becoming broader as it descends. Occipital spines dirty white, except the two longest, which are tipped with black, and chesnut-colored at their bases; under part of chin silvery white; body, neck, and upper part of tail, ash-colored, with a narrow vertebral line of a lighter color extending from the root of the neck to near the extremity of the tail. On each side of the neck is a broad dark-colored blotch, extending about midway between the elbow and shoulder.

Upon the upper part of the back, nearly on a line with the elbow, (the arm being placed against the side of the body,) is a large sub-round, dark-colored spot, having nearly in its centre a large spine, the base of which is surrounded by a narrow border of chesnut. Posterior to this, and placed at equal distances from each other and the spots above mentioned, are two oblong transverse bars, placed likewise on either side of the vertebral line. Tail ash-colored above, with three dark-colored spots or blotches on each side of the vertebral line; that at the root is much larger than either of the others—upon its extremity are seen three or four blackish bands. Thorax and abdomen yellowish, with numerous dark-colored spots disseminated over its surface; under surface of tail and extremities of same color as abdomen.

Dimensions.—Length of head to root of occipital spines, 7 lines; length, measured from posterior termination of supraciliary ridge to inferior and posterior margin of lower jaw, 5 lines; length of body from head to vent, 2¼ inches; length of tail beyond vent, 1¼ inch; length of anterior extremities, 1 inch 4 lines; of toes, 1 inch 10¼ lines.

Dimensions of largest specimen.—Length of head, ¾ of an inch; greatest breadth, including spines, 11 lines; extent of profile of head, 8 lines—taken immediately behind the orbit; length of body, 2 inches 3 lines; greatest breadth, 2 inches 2 lines; length of anterior extremities, 1 inch 9 lines; of posterior, 2 inches 1 line; of tail, 1 inch 7 lines; breadth at base, 8 lines.

Habitat.—Western Texas.

Anatomy.—The abdomen, before being opened, presented to the touch the sensation of numerous hard and rounded bodies, which, on dissection, were found to be ova, existing in considerable numbers, about the size of peas, occupying nearly one half of the abdominal cavity; they were closely agglomerated, and situated for the most part in the right inferior portion of it. Forty eggs were counted in the ovaries, each about three lines in diameter. Immediately on their left, and on a line with their upper margin, are observed the stomach and a part of the small intestine. The liver is quite large, and occupies the upper portion of the abdominal cavity, extending across it, and reaching as far down on the left side as its lower third, where it lies in contact with the ovaries. The remains of the urachus are very distinctly seen, having the form of a slender ligament, attached to the under portion of the liver, near its anterior margin, and below to the peritoneum lining the lower portion of the abdominal cavity. The liver is slightly fissured upon its under surface, and has a small gall bladder situated near its anterior margin; it measures 2 inches 10 lines in breadth, by 6 or 7 lines in length. There is no diaphragm. The lungs lie in the posterior part of the cavity common to the thorax and abdomen, behind and above the liver, in contact with the ribs and spine, and at their inferior border with the ovaries. The heart is small, 5½ lines in length by 6 in breadth; it presents two auricles, between which pass upward the aorta anteriorly, and posteriorly the pulmonary artery. The parietes of the esophagus are of moderate thickness; its inner surface is thrown into numerous folds. The stomach is a slender organ, measuring two and a half inches in length along its greater curvature, much larger at its superior than at its inferior extremity. It contained a large quantity of ants, being quite distended with them. Its lining membrane is perfectly pale; no crypts could be observed upon it. The intestines measured nine and a half inches in length; their parietes are quite thin, their diameter, in a contracted state, not being more than a line; they presented numerous dilatations of a dark bluish color, formed by immense numbers of conglomerated ants; no other food was found in the stomach and intestines but ants; a large mass of the debris of these, about an inch in length, existed within about an inch of the cloaca, which contained two calculi, each about two lines in diameter. The spleen is quite small, its greatest diameter being about two lines; no pancreas could be detected. The kindneys are an inch in length by two lines in breadth; they present numerous plicæ, having deep fissures between them. At the inferior portion of the abdomen, attached to its parietes, and on each side of the pubis, are two large leaf-like appendages of an olive-green color, about ten lines in length, consisting of masses of fat. The use of these does not appear to be known.

PHRYNOSOMA CORONATUM, Blainville.

SP. CHAR.—Head short and thick, truncated obliquely in front, in its general appearance resembling that of *cornutum;* occiput bordered with a row of nine or more spines; nostrils opening at the anterior extremity of the supraciliary ridge; three imbricated rows of large and pointed scales on each side of the chin, separated from each other and from a large row which borders its external margin, by several series of smaller scales. Body covered above and upon the sides with rhomboidal scales and granulations, intermingled with numerous large and pointed tubercles. Two rows of spines upon the flanks, the superior much the larger; a row of large and pointed spines on each side of the tail

Description.—Head short and thick, truncated obliquely in front, and covered above with large polygonal scales, pointed and more elevated upon the occiput; supraciliary ridges arched and prominent. projecting obliquely over the eye, each terminating in a pointed spine or tubercle posteriorly; openings of the nostrils circular, placed at the anterior extremity of the supraciliary ridge, their direction upward and outward; eyes large, deeply sunken in the orbit; upper and lower lids granulated; five plates upon the supraciliary ridge; rostral plate small and pentagonal, broad in its transverse direction. There are eight labial plates upon the upper jaw, not extending to the angle of the mouth; occiput bordered posteriorly with a crown of spines, thirteen in number, extending from one angle of the jaw to the other; the two inferior on each side are very small; inferior labial plates, twelve in number—the two posterior larger and more pointed than the rest, which are quite small. On the under surface of the chin, on each side of it, there are three rows of large and closely imbricated scales and pointed spines, the points of the spines looking outward and backward; the innermost of these rows is separated from the one opposite along the median line of the chin by three rows of smaller scales, the middle one of which bifurcates towards its posterior extremity; the triangular space included between the lines of bifurcation is occupied by a number of smaller scales or granulations. The outer row is separated from a series of very large and pointed scales or tubercles, running along the under margin of the lower jaw, by three or four rows of smaller scales.

These marginal scales are but slightly pointed posteriorly, except the last, which are much larger than the rest. These large spines are situated just beneath the angle of the mouth, and are placed somewhat above and apart from the rest, which form a continuous series, having their bases surrounded inferiorly by a row of small and pointed spines. This series differs from that in *cornutum* in being less pointed posteriorly, and also in its relative position, being separated from the inferior marginal plates by a single row of very pointed scales, almost imperceptible. A few additional scales may be noticed posteriorly, but the arrangement of the whole is such as to make the interval between these tubercles and the inferior labial plates much less than in either of the other series. The spines upon the head are longer than in *cornutum;* occipital plates large and polygonal; meatus auditorius large and oval, placed almost vertically; neck short and contracted, rounded above, covered with pointed tubercles and very minute granular scales. There is a large transverse fold upon its under surface which is granulated. There are several folds also upon its sides, which are protected to a certain extent by large and pointed scales. Body rather short, rounded at its sides, less depressed than in the other species, covered above with granulations and rhomboidal carinated scales, intermixed with large trihædral and pointed tubercles. The latter are arranged in four rows on either side of the vertebral line, and are each surrounded with small tubercles. The vertebral line extends from the root of the neck to the extremity of the tail; it is broader than in *cornutum*, and is less depressed, its surface being covered with large and rhomboidal scales and pointed tubercles. There are two rows of spines upon the flanks, the inferior of which is much smaller than that above it; the surface of the furrow between them is covered with numerous small granulations. The thorax and abdomen are covered with large and rhomboidal scales, which are indistinctly carinated, and pointed behind. The tail is rather longer than in *cornutum*, and more narrow at the base. It is covered above with rhomboidal carinated scales and large pointed tubercles. On either side of it is a row of very long and pointed tubercles extending from the root to its posterior extremity, giving it a strongly serrated appearance. The under surface is covered with large rhomboidal and carinated scales, each terminating in a point behind. The anterior extremities are long and well developed, covered above and in front with large rhomboidal carinated and pointed scales, smaller about the elbow; scales below smaller and less strongly carinated; those about the axillæ are smooth and granular. There are five fingers distinct, the third and fourth of equal length, each terminating in a short and curved nail. Posterior extremities longer than the anterior, and rather slender, covered above with carinated scales and very long and pointed tubercles. The under surface is covered with large rhomboidal and carinated scales. Those upon the thighs are less distinctly carinated than the corresponding ones upon the leg, where the carinæ are well developed. There are sixteen or eighteen pores on the under surface of each thigh, (Holbook.) Toes five in number, distinct, the fourth the longest, each furnished with a short and curved nail.

Color.—Head brownish above, grayish upon the sides; under surface of chin yellowish-white, with numerous dark-colored spots; upon each side of the back is a large oblong, dark-colored blotch of a chestnut-color, extending from the occiput and reaching as far as the anterior extremity of the posterior third of the humerus, the arm being placed against the side of the body. The general color of the body above is grayish, mixed with light brown or yellow. The color of the vertebral line is lighter than that of the rest of the body, but has several transverse dark-colored bars running across it. On either side of the vertebral line are three or four transverse irregular bars or blotches, which are continuous with others less distinct upon the vertebral line. Throat and abdomen yellowish-white, with numerous dark-colored blotches more or less confluent. Color of tail above same as that of body, but the dark-colored spots assume the form of bands; beneath yellowish-white, with a few transverse bars, corresponding with those above, but much less distinct.

Dimensions.—Length of head, 9 lines; greatest breadth, 10 lines; breadth between tips of pointed tubercles at posterior extremity of supraciliary ridge, 6 lines; breadth between nostrils, 2 lines; depth, measured from posterior termination of supraciliary ridge to inferior margin of lower jaw, 5 lines; of body from head to vent, 3 inches 2 lines; of anterior extremities, 2 inches; of posterior, 2 inches 6¼ lines; length of tail beyond the vent, 1¾ inch; of longest spine of occiput, 4¼ lines.

Habitat.—Great desert of the Colorado.

PHRYNOSOMA PLANICEPS, Hallowell.

SP. CHAR.—Head more depressed, longer, and broader than in *cornutum;* nostrils within the supraciliary ridge; upper jaw bordered posteriorly with a row of pointed spines; central spine of the crown separated from the two adjacent spines by a wide interval; front part of the head furrowed in the centre; scales of chin of nearly equal size; abdominal scales smooth or indistinctly carinated; tail longer than in *cornutum*, and less suddenly tapering to a point; ground-color light yellow or ash (brown mingled with chestnut in *cornutum.*)

Description.—The head is of moderate size, depressed, quite broad posteriorly, presenting a marked depression upon the frontal portion of it in the centre; the snout is obtuse, differing in this respect from the *cornutum*, which is more or less pointed; the nostrils are situated in a single scale within the supraciliary ridge, and look outward and upward; between the nostrils and the anterior part of the muzzle are three distinct plates, two above and one below, the latter more or less quadrangular in shape; the front part of the head is covered with polygonal tubercles and scales of various sizes, of which those in the centre and those most anterior, situated immediately above the internasal plates, appear to be the largest; the area containing these tubercles, and which is comprised between the supraciliary ridges and the posterior margin of the frontal portion of the head, is shorter and broader than in *Phry. cornutum;* the occipital plate is large and broad, surrounded with numerous small scales differing in size and shape; the occipital scale is surmounted with a spine, and immediately behind it, and at a short distance from it, are two other pointed scales; the number of pointed scales in this region of the head appears considerably greater in *cornutum;* there are nine spines upon the posterior part of the head, the central one of which is quite small, having its base surrounded by a series of small scales; eyelids covered with minute scales. Of the three lateral spines on each side of the posterior part of the head, the middle is the longest; of the three similarly situated in *cornutum*, the posterior is the longest. The margin of the lower jaw, posteriorly, is bordered with a row of pointed spines, which do not exist in *cornutum*, and are separated from the row of larger scales, bordering the inferior margin of the jaw by two rows of small scales. Upon the side of the head posteriorly, immediately below the orbit, and in advance of the occipital spines, are three or four large and pointed tubercles. The scales upon the temples are of moderate size, the central ones the largest. The meatus auditorius is oval, much more extended in the vertical direction than antero-posteriorly, and protected in front by three or four large and pointed tubercles. The inferior margin of the lower jaw is bordered with a row of nine scales on each side, the three posterior the largest—the last considerably longer than the others, and terminating in a sharp point. Upon the chin on each side is a smaller row, separated from the former by seven or eight rows of quite small scales. Neck much folded; body covered above with numerous scales, differing much in size and shape, and pointed and strongly carinated tubercles. The vertebral line is occupied by about three rows of small scales, having on either side of it tubercles, with black or brownish-colored carinæ. There are two rows of spines on each side of the abdomen, the upper ones the longest; scales upon the abdomen quadrangular and smooth; extremities of moderate size, rather slender, covered above with scales and numerous pointed spines. The posterior surface of the arm presents both smooth and indistinctly carinated scales; under surface of forearm and tibiæ covered with carinated scales; under surface of tail covered also with similar scales—its upper half presents numerous long and pointed spines upon its sides; a row of twelve very distinct pores on one thigh, and eleven on the other, in the male specimen.

Coloration.—Ground-color light-yellow, or ash. The dark-colored bands upon the front part of the head are less broad than in *cornutum*. The dark-colored blotches upon the neck are separated by a broader interval; those upon the body are very similar to those of *cornutum*, both as respects their form and distribution. Abdomen in the specimen examined, much less distinctly maculated than in the latter species, one of the specimens presenting no spots whatever.

Dimensions.—Length of head, 9 lines; greatest vertical measurement, 7 lines; breadth posteriorly, including spines, 1 inch 2 lines; length of body to vent, 3 inches; length of tail, 1 inch 7 lines; length of anterior extremities, 1 inch 9 lines; of posterior, 2 inches 3½ lines.

Habitat.—Western Texas. The specimens procured by Dr. Woodhouse were found ninety miles below El Paso, where this species is quite abundant.

PHRYNOSOMA ORBICULARE, Weigmann.

SP. CHAR.—Head short, triangular; snout rounded; lower jaw without spines; the three posterior labial plates large and elevated: nostrils open at the anterior extremity of the supraciliary ridge; a pointed tubercle in front of the meatus of the ear; abdomen covered with smooth scales; femoral pores fifteen, very distinct; body orbicular.

Seven specimens of *Phrynosoma orbiculare* were received. They correspond very well with the figure of the *orbiculare* in the Herpetologia Mexicana. The coloration of these specimens, however, varies considerably; in several the ground color is ochraceous, the dark-colored blotches being bordered with yellow. The longest measures four inches eight lines, from the tip of the snout to the extremity of the tail. On removing the epidermis of the youngest of them, they were found to resemble very closely the *Phrynosoma douglassii; douglassii*, however, I believe to be a distinct species, one of the specimens belonging to the Academy measuring 4¼ inches in length. Accompanying these are two others, differing from them very remarkably in color, being uniformly rufous upon the upper surface. Traces only of the dark-colored blotches upon the back are observed. In these specimens the two central occipital spines are longer and more robust than in any of the others; the length of these is also four inches eight lines. One of the first-mentioned specimens appears to be very old, and in this the spines have disappeared from the upper surface of the body.

Anatomy.—On opening this animal, one is struck with the extent of surface occupied by the liver, which, commencing on the right side of the abdomen at its upper part, passes obliquely across, and reaches to within little more than one-half an inch of the extremity of the abdominal cavity. On the left, lying immediately above the liver, is the stomach, which is very large, extending from the anterior to nearly the posterior extremity of the abdomen, and occupying a very large part of the left side of the abdominal cavity. A considerable portion of what, from its great size, resembles the large intestine, is seen lying upon the right side, presenting a marked contraction, and alongside of it the small intestine, in numerous folds. There is no urinary bladder. The lungs are of equal length, the left lying in contact with the stomach in front, and the right with the long and slender lobe of the liver. The auricles are very large, each being nearly, if not quite, as large as the ventricle itself. The liver is divided into several lobes; the gall bladder is distinct. The stomach is about two inches in length in its natural condition, and an inch and a half in breadth when laid open and distended. It was filled with insects, of which the heads of ants appeared to be the most conspicuous, and several *Coleoptera*, nearly perfect, about an inch in length. The entire intestine is about six and a half inches in length, very much contracted at intervals; the lower portion is much distended with debris of food. The last contraction is about two and a half inches from the inferior extremity of the intestine. Several coleopterous insects were found in this part of the intestine, quite as perfect as in the stomach. The greater part of the contents consisted of what appeared to be the heads of ants, which insects would seem to be the favorite food of this animal. Not a trace of vegetable matter of any kind was observed, either in the stomach or intestine. The leaf-like fatty appendages found in the lower part of the abdomen of *cornutum* also existed in this animal. The oviducts were much convoluted, and did not contain any ova, and the ovaries were small and undeveloped. (This dissection was of the oldest specimen.)

Genus ANOTA, Hallowell.

GEN. CHAR.—Head small, covered above with polygonal plates; a row of spines posteriorly; nostrils within the supraciliary ridge; supraciliary ridge but slightly developed, terminating posteriorly in a small and pointed spine; chin covered with smooth granulations of unequal size; a row of pointed scales on each side; two gular folds; the two middle of the row of spines upon the occiput much longer than the rest, and incurvated; intermediate spine very small; *no external openings for the ears;* extremities slender; upper surface of body smooth, the numerous pointed spines of the ordinary *Phrynosomata* not existing; no fringe along the lateral margin of the abdomen; body compressed, oval, or rather pyriform in shape; tail nearly as long as the body; femoral pores very distinct.

ANOTA M'CALLII.

SP. CHAR.—Upper margin of jaw denticulated posteriorly; the two posteriors of the row of spines along the margin of the under jaw small, the two anterior to them quite large; body ash-color above, with a narrow dorsal line of black extending from the occiput to the root of the tail; two oblong dark-colored blotches on each side of the neck; two rows, on each side of the dorsal line, of dark-colored sub-circular blotches, two in a row, the external larger than the internal; ground color of upper surface of tail and extremities same as the rest of the upper surface of the body; under surface silvery white, immaculate; twenty femoral pores on each side, very distinct.

Description.—The head is small, covered above with polygonal plates of various forms and dimensions, the largest of which are upon the posterior part of the head, where they are slightly tuberculated; those upon the orbit differ greatly in size, those upon the inner and posterior border being much the larger; the upper part of the head presents a marked depression formed by the elevation of the orbits, which is occupied with numerous well-defined polygonal plates; the rostral plate is small and pentangular, broader transversely; immediately above it are two small plates, then follow, in a continuous longitudinal row, four plates, of which the third is a regular octagon; the two last of these have, on each side of them, two plates, one in front of the other, the anterior more or less quadrilateral, the posterior pentagonal in shape; the nostrils open in a single scale, leaving a narrow margin surrounded with six polygonal plates. They are situated within the supraciliary ridge, and are about a line apart; eight plates constitute the supraorbitar ridge on each side; the posterior terminates in a point which is slightly elevated; the eyelids are covered with small granular scales; three plates are observed immediately beneath the orbit on each side, followed by the coronal row of spines; of these there are nine which are quite distinct, viz: three on each side, the two long and incurvated posterior ones, and the small intermediate one; the spines upon each side of the head anterior to these are quite small;

twelve plates margin the upper jaw on each side; the inferior border of a number of them is triangular, giving to this portion of a jaw a denticulated appearance; immediately above the marginal plates of the upper jaw are one or two rows of small polygonal plates; the external and inferior border of the lower jaw presents a row on each side of pointed spines, and two small plates anteriorly; of these spines the two posterior are small, the two in front of them quite large; there are no external openings for the ears, the animal in this respect resembling the genus *Holbrookia* of Professors Baird and Girard, or *Cophosaurus* of Troschel. The chin is covered with smooth polygonal plates; a longitudinal row of larger scales than the rest extends on each side from near the anterior extremity of the under jaw almost as far posteriorly as the lateral folds upon the neck; between this row and the inner margin of the jaw are six or seven rows of small quadrangular plates; throat much folded, covered with granulations; no spines; on each side is a large plate surrounded by nine or ten smaller ones arranged in a circle; neck contracted, body oval, or rather pyriform in shape, covered above with smooth scales, many of which are comparatively large, oval or circular in form, surrounded by numerous other smaller scales; a few of the larger scales present a carina in the middle; anterior and superior surface of arms and thighs covered with carinated scales, posteriorly with granulations; axillæ granulated; legs and forearms covered above with carinated scales; a number of spiny tubercles are observed upon the thighs; scales of abdomen quadrangular and smooth; scales upon the under part of the thighs smooth—carinated upon under surface of legs and forearms; a row of transverse scales under each of the fingers and toes, with a marginal fringe on each side; third and fourth finger of nearly equal length, the third slightly longer than the fourth; palms and soles of the feet covered with carinated scales; there is no marginal fringe whatever upon the lateral margins of the abdomen; twenty distinct femoral pores may be counted on each side; two large scales posterior to the vent, with three smaller scales between them; extremities slender; of the toes the fourth is the longest; tail long, flattened, provided with a single row of pointed spines on each side; it is broad at its base, gradually narrowing to its extremity; it is covered above with small scales and a few carinated tubercles; under surface covered with rhomboidal scales; those towards its extremity are distinctly carinated.

Coloration.—Body ash-color, with a narrow dorsal line of black extending from the occiput to the root of the tail; an oblong, dark-colored blotch on each side of the neck; two rows on each side of the dorsal line of dark-colored subcircular blotches, two in a row, the external larger than the internal; ground color of the upper surface of tail and extremities same as that of the upper surface of the body; under surface silvery white, immaculate.

Dimensions.—Length of head, 7 lines; greatest breadth, exclusive of spines, 8 lines; length of longest spine, 5½ lines; of the one next to it, 2½ lines; length of anterior extremities, 1 inch 6 lines; of posterior, 1 inch 9½ lines; length of neck and body to vent, 2 inches 1½ lines; of tail, 1 inch 8½ lines; total length, 4 inches 5 lines.

Habitat.—Great desert of the Colorado, between Vallecita and Camp Yuma, about one hundred and sixty miles east of San Diego.

Remarks.—The animal above described is a *Phrynosoma*, the ears of which are concealed by the integument. It was caught by Colonel Geo. A. McCall, of the United States army, during a recent journey through California and Oregon, and presented by him to the Academy of Natural Sciences, of Philadelphia, with two young specimens of *Phrynosoma coronatum* found in the same region. The great length of its central posterior spines, its contracted neck, and singularly-shaped body and tail, give it a very odd appearance, differing from that of any of the known *Phrynosomata*.

Order OPHIDIA.

Genus PITYOPHIS, Holbrook.

Gen. char.—"Head elongated, oval, four-sided, with the snout prolonged; frontal plates four, in a transverse row; rostral plate an isosceles triangle; basis rounded and prolonged, its apex pointed and received between the anterior frontal; loral plate single; two anterior and three posterior orbitar plates; maxillary teeth large and numerous, arched backward, nearly all of the same size, rather smaller behind; body large, long, subcylindrical; scales carinated."

Pityophis affinis, Hallowell.

Sp. char.—Scales much larger upon the sides than upon the back, where they are comparatively small; a series of brownish or black subquadrate blotches upon the back; a row of much smaller blotches on each side; transverse bands of jet black upon the tail; tail short; abdomen and tail thickly maculated with black; thirty-one rows of carinated scales. Abdom. scuta 221. Sub-caud. 64.

Description.—The head of this animal is of moderate size, robust, conical somewhat rounded above; the rostral plate is triangular, projecting considerably, differing remarkably in this respect from the ordinary *Colubers* and *Tropidonotes;* its apex passes upward and backward between the anterior frontal plates; these are of moderate size, irregularly quadrilateral; the nasal plates are two in number, with the nostril placed between them; nostrils lateral, more or less circular, wide apart; there are four posterior frontals in a transverse row, the outer ones larger than the two middle; their inferior extremities pass downward and outward, forming part of the sides of the head; there is a small loral situated between the inferior margin of the outer posterior frontal and the second and third labial and the posterior nasal and the anterior orbitar plates; on the right side of the head, in the specimen examined, is a large and single antorbitar and three posterior orbitars—on the left, two anterior and three posterior orbitars; the upper portion of the superior orbitar forms a small part of the superior surface of the head; the supraorbitar plates are rather short, depressed, pentangular, and do not project over the eye; the eye is of moderate size; canthus rostralis very moderately grooved; the vertical plate is pentagonal, broader in front, slightly excavated laterally; the occipital plates are large and distinctly pentagonal; there are eight superior labials, of which the fourth, sixth, and seventh appear to be the largest; neck somewhat contracted, body long and rather slender, covered with thirty-one rows of carinated scales; slender and smaller upon the back, larger upon the sides; tail short.

Coloration.—Most of the labial plates are bordered posteriorly with black; head covered with numerous small brownish spots, larger upon the occipital and vertical plates; a brownish band between the orbits; about fifty-three sub-quadrate brownish blotches and bars are observed upon the back; towards the tail they assume rather the form of transverse bars. There is a row of smaller dark-colored spots on each side; most of the scales in the intervals between the blotches are marked with black, except towards the tail, where the yellowish ground color of the animal is more apparent; the chin and throat are straw-color; the abdomen is straw-color, thickly maculated with black upon the sides and middle; upper surface of tail banded with deep black; interspaces yellow; under surface straw-color, with irregular brownish bars and blotches.

Dimensions.—Length of head, 1 inch 2 lines; greatest breadth, 8 lines; length of body, 2 feet 6 inches; of tail, 5 inches 5 lines; greatest circumference, 2 inches 2¼ lines. Abdom. scuta 221. Sub-caud. 64.

Another specimen was received of the same species as the above, but which presents a remarkable deviation in the form and arrangement of the plates upon the head, which is no doubt abnormal. Thus there are seven plates upon the front part of the head instead of six, as in *Pityophis;* these are arranged in three rows upon the top of the head—two plates in the front, two in the middle, and three in the posterior; on each side of the middle row is a small quadrangular plate lying immediately above the loral, constituting, as it were, a superior loral; there are but one large antorbitar and four posterior orbitar plates on the right side, and three on the left; there are nine superior labials. Abdom. scuta 227. Sub-caud. 71.

Genus PSAMMOPHIS, Boie.

GEN. CHAR.—Head much elongated, sub-oval; snout prominent but rounded; loral plate single, long, and large; superior orbitar greatly projecting; two posterior orbitar plates; but one anterior; nostrils lateral near the snout; eyes very large; body long, slender; tail very long.

PSAMMOPHIS FLAVI-GULARIS, Hallowell.

SP. CHAR.—Head long; superior and inferior marginal outline of cranial portion slightly convex; temples depressed; color light-brown or fuscous above; chin, throat, abdomen, and under part of tail, yellow; seventeen rows of scales. Abdom. scuta 190. Sub-caud. 97.

Description.—The head of this animal is long and narrow, depressed above; the rostral plate is large and triangular, incurvated below, rounded and projecting in front; the anterior frontal are of moderate size, quadrangular—the posterior resembling them in form, but much larger, their inferior and external margin extending upon the sides of the head and in contact with the superior margin of the frenal and the freno-orbitar plates; the vertical or interorbitar plate is quite long, pentagonal, much broader anteriorly than posteriorly, where it terminates in a point; its sides are much excavated; the supra-orbitar are quadrangular, broader posteriorly, their internal margin rounded; the occipital are large and pentagonal, in contact anteriorly with the vertical, the supra-orbitar, and the superior post-ocular plate; there are two post-oculars, of which the superior is much the larger; the inferior is small and quadrilateral. There are two anterior orbitar, the superior of which is much more extended superiorly than inferiorly, its superior portion making its appearance upon the upper part of the head between the supra-ocular and the posterior frontal plates; the nostrils are lateral, looking upward and backward, situated between two nasal plates; the frenal plate is pentangular, hollowed laterally, its superior margin articulating with the inferior and external margin of the anterior and posterior frontal plates; the freno-orbitar is four-sided, its posterior and inferior margins prolonged so as to form an acute angle, placed between the third superior labial and the superior antocular; the inferior antorbitar is quite small compared with the one above it, with an inferior rounded margin. The superior orbitar projects considerably over the eye, which is quite large; the canthus rostralis is much hollowed; there are nine plates upon the margin of the upper jaw, of which the sixth, the seventh, and the eighth are the largest; the two last are more or less quadrilateral in shape; the mental plate is small and triangular, the anterior geneials much smaller than the posterior; the body is long and slender, thicker in the middle than at its extremities, the neck being less developed than the corresponding portion of the head; scales smooth, broad, and quadrangular at the sides, near the abdomen—more narrow upon the back; those upon the neck quite narrow; upper part and sides of tail covered with smooth quadrangular scales towards its base, distinctly hexagonal posteriorly; sixteen rows of longitudinal scales upon the back and sides of the animal. Abdom. scuta 190. Sub-caud. 97. In a larger specimen, abdom. scuta 200, tail mutilated.

Coloration.—Head brownish above and upon the sides, the superior marginal plates and the antocular margined with yellow; upper part and sides of body and tail of a dirty yellow or straw-color; chin, throat, abdomen, and under part of tail, light yellow.

Dimensions.—Length of head, 1 inch 3 lines; breadth posteriorly, 5 lines; length of body, 2 feet 7 inches 3 lines; of tail, 10½ inches.

Habitat.—Cross Timbers, near Creek boundary, and head of Rio Grande, Texas.

Gen. remarks.—The animal above described differs from the *Psammophis flagelliformis* in being more robust, and in its coloration; all the specimens brought by Dr. Woodhouse being of a light-brown or olive-color above, and of a yellow or straw-color beneath. The specimen of *flagelliformis* in the collection of the Academy corresponds with the description of Professor Holbrook, who makes the following observations in regard to its color: "The superior surface of the head and neck and nearly one-third of the body is raven-black, gradually becoming paler on approaching the tail, which is of a very light-brown or tawny-color; the scales on the tail are rendered conspicuous by their dark margins. The inferior surface of the neck and anterior part of the abdomen is bluish slate-color; the posterior part white, clouded with brown; some parts of the abdomen are white and shining, as well as the inferior surface of the tail. This snake, however, varies in color, or rather in shade. Bartram has seen them of a cream-color, clay-colored, sometimes almost white, but always raven-black near the head."[*]

The *Psammophis flagelliformis* appears to be rare, Professor Holbrook having seen but one specimen during a seven years' search, and Major Leconte, who resided a long time in Georgia, informs me that he also had seen but one. The present species, according to Dr. Woodhouse, is very abundant where he discovered it, viz: in the sandy region reaching from the frontiers of Texas to the Creek territory, and designated by a strip of timber extending across it. The specimens under consideration appear also to differ in the form of the scales, the number of rows of which is the same in both. In *flagelliformis* they are more narrow and elongated, resembling the scales of *Dendrophis;* in *flavi-gularis* they are broader, and many of them distinctly hexagonal. The tail is two and a half inches shorter than in *flagelliformis*, but the body of *flagelliformis* is eight inches longer. Schlegel observes that the serpents belonging to this genus may be considered as holding a middle place between the terrestrial serpents and those which inhabit trees. He describes eight species, none of which belong to the United States. The present species, however, is known to ascend trees, which they do with great agility, reaching their summits with ease when attacked.

Genus LEPTOPHIS, Bell.

GEN. CHAR.—Head much elongated, the snout slightly projecting, sub-oval, narrow, covered with plates, as in *Coluber;* loral plate single; one anterior orbitar and two posterior orbitar plates; body long and very slender, covered with sub-hexagonal scales.

LEPTOPHIS TÆNIATUS, Hallowell.

SP. CHAR.—Head much flattened, olive-colored, with yellow markings; ground color of body above olive, with two lateral longitudinal yellowish vittæ extending from the occiput to the tail, each middle scale marked with a longitudinal line of black; two lines of black on each side passing through the middle of the two inferior rows of scales from the occiput to a short distance beyond the tail; abdomen immaculate, except towards the neck, where there is a number of small black spots. Abdom. scuta 199. Sub-caud. 130. Fourteen rows of longitudinal smooth scales.

Description.—The head is very much flattened posteriorly, presenting nine plates upon its upper surface; the snout projects slightly beyond the lower jaw; the anterior frontal plates are of moderate size, the external and anterior angle rounded; the posterior frontal are large and pentagonal; their external and lateral margin is upon the side of the head, between the posterior nasal and anterior orbitar plate; the vertical plate is indistinctly hexagonal, narrow in front, broader behind, excavated laterally; the supra-orbitar are rather long, irregularly quadrilateral, rounded above; the occipital are quite large, pentagonal; the nasal are two in number, with the nostril placed between them; there is a loral, quadrilateral, longer in the antero-posterior direction than vertically; there are two anterior and two posterior orbitars; the inferior antorbitar is very small, the superior quite large, narrow below, much extended above; a part of it, triangular in shape, appears upon the upper part of the head, between the posterior frontal and the superior orbitar plate; immediately behind the inferior post-orbitar and the narrow prolongation of the fifth labial is a small quadrilateral plate; the rostral plate is triangular, rounded in front, excavated below; there are eight superior labials; the fifth is remarkable for its form, presenting a narrow prolongation, forming part of the posterior border of the orbit; the seventh labial is the largest, quadrilateral; the eye is quite large and projecting; the body is very long and slender, and covered with smooth quadrangular scales; tail long and very slender towards its extremity.

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[*] Holbrook, N. Amer. Herpetol., vol. iv., p. 12.

Coloration.—Head olive above, the plates bordered more or less distinctly and entirely with yellow; anterior and posterior orbitar plates yellow for the most part; upper jaw yellow, except along the superior border, where several of the plates are marked with olive; chin and throat yellowish, marked with dark-colored spots; ground color of body above, olive; on each side is a narrow vittæ of a white or light-yellow color, extending from the occiput to the root of the tail, where they become indistinct; it occupies one row of longitudinal scales and the half of each adjoining row; the scales of the intermediate row are marked with a line of black in the middle; the internal half of the lateral adjoining rows is white, the external black; there are two dark-colored black lines on each side, extending from the head a short distance beyond the root of the tail; these lines pass through the middle of each of the two inferior rows of lateral scales; under surface of body and tail light-yellow, pink towards the sides; a considerable number of small black spots upon the throat and neck.

Dimensions.—Length of head, 9¼ lines; greatest breadth, 5 lines; length of body, 1 foot 7 inches 5 lines; of tail, 9 inches; circumference, 1 inch 1 line; total length, 2 feet 5 inches 2¼ lines. Abdom. scuta 199. Sub-caud. 130.

Habitat.—New Mexico, west of the Rio Grande.

Genus TROPIDONOTUS, Kuhl.

GEN. CHAR.—Head oblong-ovate, depressed; two nasal plates; eyes moderate, pupil round; loral plate single; anterior orbitar single; scales sub-hexagonal, elongated, and strongly carinated.

TROPIDONOTUS PROXIMUS.

Syn. Col. proximus, Say: Long's Expedition to the Rocky mountains, vol. 1, p. 187.

SP. CHAR.—Head long, flattened posteriorly, two white spots upon the occipital plates, near the middle of their inner margin; body slender, covered with nineteen rows of carinated scales; three narrow vittæ extending from the occiput to the extremity of the tail, the middle one of a brick-dust color—intermediate space blackish, with numerous white points. Abdom. scuta 170-178. Sub-caud. 82-93.

Description.—The head is long, flattened posteriorly and upon the middle; depressed in front. The rostral plate is broad, much incurvated below, rounded above, convex in front, the snout projecting beyond the anterior margin of the lower jaw. The anterior frontals have their anterior and external margins rounded; their internal and posterior angle rectangular. The posterior frontal are larger than the anterior, more or less quadrangular; their external and inferior margins, on the side of the head, are in contact with the loral plate. The vertical plate is pentangular, broader anteriorly. The supra-ocular are convex, long, narrow in front, broader posteriorly. The occipital are large and pentangular, presenting two oblong white spots near their internal margin, at its middle. The nasal are two in number, with the nostril placed between them. There is a quadrangular loral plate, and but one antocular, its upper portion quite large, being extended so as to form part of the upper surface of the head, passing in between the posterior frontal and the supra-ocular plate. There are three postoculars, the inferior smaller than the others; and eight superior labials, the sixth and seventh the largest. Eyes of moderate size; neck contracted; body long and slender, covered with nineteen rows of carinated scales—the scales are long and slender, hexagonal, slightly notched posteriorly; the row nearest the abdomen the broadest; tail rather long and tapering.

Color.—Head blackish above, with the ten white spots already indicated upon the inner margin of the occipital plates; a white spot upon each of the two inferior of the posterior oculars, and upon the anterior temporal plates; superior labials white, with a bluish tinge; back blackish, with three narrow vittæ extending from the occiput to the extremity of the tail; the middle one, which is of a brick-red color, occupies one row and half of each of the adjoining rows of scales. The intermediate spaces, as well as those between the abdomen and the inferior vittæ, present numerous small white points, which do not, however, exist upon the neck and posterior part of the body; chin and throat yellowish-white; abdomen light-green, immaculate. Abdom. scuta 170. Sub-caud.

Dimensions.—Length of head, 8½ lines; greatest breadth, 4 lines; length of body, 14 inches 8 lines; length of tail, 5 inches 10 lines; greatest circumference, 1 inch 2 lines.

Habitat.—Verdigris river, a tributary of the Arkansas, Creek boundary; found also in Texas.

Remarks.—The *Leptophis saurita* (Holb.) has seven plates along the margin of the upper jaw; the *Col. proximus* of Say, eight. The *proximus* differs from the former in having two white spots upon the occipital plates, near the middle of their inner margin, and also in the presence of two black lines running along the margin of the dorsal vittæ. The space intervening between the vittæ is of a brownish color in *saurita*, but blackish in *proximus*, with numerous white spots. The head of *proximus* is more flattened, and much broader, than in *saurita*, and the anterior frontal plates are triangular. In *saurita* these plates are more or less quadrilateral; the snout, therefore, is more rounded in the latter. The vertical is more narrow in the middle in *proximus* than in *saurita*. In *proximus*, the abdominal scuta in three specimens are 170, 174, and 178, the sub-caudal 82 and 93, (slightly mutilated in the latter specimen,) the tail in the third being too much injured for accurate description. In *saurita* the abdominal scuta, according to Professor Holbrook, were 147, 150, 156, 160; sub-caud. 112. 117, 121, 125. In the specimens belonging to the Academy, abdom. scuta 155, 160, 163, 164, 165; sub-caud. 113, 122, 127, 130. The tail, therefore, as Say observes, is proportionately shorter in *proximus*, which, with the other reasons just given, induce me to differ from my friend, Prof. Holbrook, who considers them identical.

TROPIDONOTUS WOODHOUSII, Hallowell.

SP. CHAR.—Head long, depressed; snout acute, rounded in front; eyes projecting; neck much contracted; body thicker in the middle; tail of moderate length; scales strongly carinated; a series of transverse, rhomboidal, dark-colored blotches upon the back, less distinct near the tail; obsolete upon the anterior half of the body, which is of an olive-green color; interstices between the blotches white. Abdom. scuta 150; sub-caud.

Description.—The head is quite large, and much depressed, covered above with nine plates; of these the anterior frontal are pentangular, their posterior and external angle being somewhat prolonged. The posterior frontal are much larger, and irregularly quadrilateral. The vertical plate is pentagonal, much broader in front than posteriorly, its lateral margin being slightly hollowed. The supra-orbitar are oblong, pentagonal, broader behind than in front. The occipital are very large, pentagonal. The rostral plate is broad and quadrilateral, rounded above, excavated below. The nostrils look upward and outward, and are situated between the nasal plates. There is one loral plate on each side, which is quadrilateral. There are three posterior oculars, and one anterior ocular plate; the latter is quite large, and excavated anteriorly, so as to receive the posterior margin of the loral. There are two large temporal plates on each side of the occipital. There are eight labials upon the margin of the upper jaw, on each side; of these the sixth and seventh are the largest. The eyes are large and projecting, the supra-orbitar plates extending but slightly over the eyes. The mental plate is small and triangular. The anterior and posterior genecials are quite long; the posterior somewhat more slender, and longer than the anterior. The body is long, much thicker in the middle than at the extremities, covered with strongly carinated scales; the rows upon the sides are much less strongly carinated than those upon the back; the row nearest the abdomen is the broadest; there are twenty-three rows of scales.

Coloration.—Dusky olive upon the upper part of the head and neck, becoming darker upon the middle of the body and towards the tail, presenting numerous dark-colored transverse bands, most distinct upon the posterior half of the body. The bands do not, as in *Tropidonotus sepedon*, extend as far as the abdomen; they are bordered, anteriorly and posteriorly, with a strip of white. Chin, throat, and neck, straw-color. The abdominal scales are bordered anteriorly with black. Tail straw-color, with indistinct bands of black along the borders of the scales.

Dimensions.—Length of head, 1¼ inch; greatest breadth, 9 lines; length of body, 2 feet 2 inches, (Fr.;) of tail, 5¼ inches. Abdom. scuta 150. Sub-caud. 44, (tail broken off at extremity.)

Habitat. Prairies near the Arkansas river.

Remarks. The reptile above described resembles the *Tropidonotus erythrogaster* in having the same number of rows of scales, there being twenty-three in each; and very nearly the same number of abdominal plates, there being 148 in *erythrogaster* and 149 in *Woodhousii.* The tail in the specimen of the latter species having been mutilated, the number of sub-caudal scuta could not be accurately determined. The coloration, however, of the two animals is very different, the white transverse bands upon the back being very conspicuous in *Woodhousii*, but do not exist in *erythrogaster.* They differ also greatly in size, *Woodhousii* being a much smaller animal. *Tropidonotus fasciatus* has 140 abdominal plates, and 42 pair of sub-caudal scales. The body has irregular oblong or triangular purplish spots on the flanks, which are insensibly lost about midway between the abdomen and vertebral line. In old animals, the whole superior and lateral surface becomes of a brownish color; its circumference is five inches.

TROPIDONOTUS RHOMBIFER, Hallowell.

SP. CHAR.—Head elongated, depressed, slightly swollen at the temples; a series of dark-colored rhomboid spots upon the back presenting the form of triangles, their apices posteriorly and anteriorly touching each other; a row of dark-colored transverse bars upon the sides uniting with the lateral inferior extremities of the rhomboid spots upon the back; a series of dark-colored bands upon the tail; abdomen and under part of tail more or less maculated; scuta very strongly carinated. Abdom. scuta 142. Sub-caud. 70. Abdom. scuta in another and larger specimen, 136. Sub-caud.

Description.—Head rather long, depressed, covered with plates in front, and scales posteriorly; there are two anterior and two posterior frontals; the first are small and triangular, their apices truncate; the latter are more or less quadrangular, and larger than the anterior; the vertical plate is pentagonal, its lateral margins excavated; the supra-ocular are long and narrow, broader behind; the occipital are quite large, more or less triangular in shape; there are three posterior ocular plates, and two anterior; the nasal plates are two in number, having the nostril between them; the rostral plate is large, with a somewhat rounded apex; there are eight superior labials, the seventh the largest and quadrilateral; there are ten inferior labials; the mental plate is small and triangular, its apex pointing backward; the anterior and posterior geneials are oblong, quadrilateral, the posterior longer than the anterior; the eyes are large; the neck is slender, the body long, covered upon the back and sides with strongly carinated scales; tail of moderate length.

Coloration.—Body of a greenish-brown color (in spirits) above, presenting numerous transverse bands of black along the sides, each uniting with the lateral and inferior angle of a dark-colored rhomboid spot upon the back; abdomen and under surface of tail straw color, clouded with black.

Dimensions.—Length of head, 1½ inch, (Fr.;) greatest breadth posteriorly, 10 lines; length of body, 2 feet; of tail, 6½ inches; total length, 2 feet 8 inches.

Habitat.—Arkansas river and its tributaries, near the northern boundary of the Creek nation; found abundantly on the borders of streams. Dr. Woodhouse states that he found one with many young on one of the sand-banks of the Arkansas river.

TROPIDONOTUS TRANSVERSUS, Hallowell.

SP. CHAR.—Head large, swollen at the temples, convex above posteriorly, flattened between the orbits, depressed in front; a series of subquadrate dark-colored blotches, thirty-six or thirty-seven in number, along the back; a transverse row of oblong bars along the sides, their upper margins intermediate between the inferior margins of the dorsal blotches; scales strongly carinated. Abdom. scuta 144. Sub-caud. 78.

Description.—Head of moderate size, depressed above, covered with nine plates the anterior frontal are smaller than the posterior, somewhat triangular in shape; the posterior are quadrilateral; vertical plate pentagonal, longer than broad; occipital large, five-sided; the supra-orbitar project slightly over the eyes. There are one anterior and three posterior orbitars; there are two nasal plates, having the nostril between them, looking outward and upward; rostral plate rounded in front, slightly incurvated below; a loral plate; eight plates margin the upper jaw, the sixth and seventh being the largest; there are nine plates upon the margin of the lower jaw, the fourth, fifth, and sixth the largest; eyes moderately large; body covered above and upon the sides with strongly carinated scales.

Coloration.—Head fuscous above, whitish at the snout; upper jaw whitish, the posterior margin of the scales bordered with brown; under jaw white; upon the posterior part of the head, and contiguous portion of neck, a transverse band of black extending to the throat, emarginate posteriorly; another transverse band upon the neck, about a line distant, much more irregular in shape, greatly emarginate behind; a dorsal row of sub-rhomboidal blotches, extending as far as the tail and a little beyond it; the sub-rhomboidal form of the markings is well characterized upon the anterior and middle parts of the body; towards the tail they are less regular in shape. Thirty of these may be counted upon the body, separated from each other by a narrow band of white. Immediately below these spots, and alternating with them, for the most part, is a lateral series of transverse bands of the same color as those upon the back, separated from each other by bands of a grayish-white color, about twice the breadth of the similarly-colored bands upon the back; these bands assume upon the tail the form of spots; upper part of tail, except at base, fuscous; chin, throat, and neck yellowish-white; abdomen and under part of tail yellowish, clouded with black; twenty-three rows of scales upon the back. Abdominal plates, 144. Sub-caud. 78.

Dimensions.—Length of head, 12 lines; greatest breadth, 7; length of body, 1 foot 5 inches 7 lines; of tail, 6 inches.

Habitat.—Creek boundary; found near the banks of the Arkansas and its tributaries.

Gen. remarks.—In *Tropidonotus taxispilotus* the bars upon the back are much wider apart than in the above species, and it has but two posterior ocular plates; the arrangement of the temporal plates is also different; the frenal plate is much longer. *Tropidonotus taxispilotus* is remarkable for its great size, being, perhaps, larger than any of our known water-serpents; *transversus* is a much smaller animal. The markings upon the back and sides correspond in some degree with Say's description of *Col. calligaster*, but the scales in *calligaster* are smooth. The latter animal is most probably our well-known *Col. eximius*.

TROPIDONOTUS PARIETALIS.

Syn. Col. parietalis, Say.

SP. CHAR.—Head long; vertex and upper part of occiput depressed; neck slender; body long, thicker in the middle; a row of red spots on each side, near the abdominal scuta; three longitudinal vittæ upon the body, the central one extending to the extremity of the tail; no regularly disposed sub-quadrate spots in the interspaces between the vittæ. Abdom. scuta 160. Sub-caud.

Description.—Head flattened above, depressed in front; snout slightly projecting; there are one large antocular and three small postocular plates; nostrils lateral, looking outward and upward, situated between two nasal plates; there is a quadrangular loral situated between the posterior nasal and the antocular plate; eye somewhat projecting. Eight plates margin the upper jaw on one side, and seven on the other, the second and third on the left side, counting from the rostral, forming but one. The occipital, intraorbitar, and frontal plates, present nothing remarkable. The mental is small and triangular. The anterior geneials are quite small, oblong, quadrilateral; the posterior quite large, comparatively. The body is somewhat slender, slightly contracted at the neck, covered upon the back with strongly carinated scales. The rows of scales near the abdomen are also carinated, but the carinæ are less distinct. Tail of moderate length.

Coloration.—Head dark-brown, or blackish, above: body and upper parts of tail same color, but less deep than upon the head; two small white spots at the inner margin of the occipital plates, nearly midway between their anterior and posterior margins; three white or yellowish bands extending from the head along the body and tail—those on the sides of the tail indistinct; abdomen and tail slate-color; chin and lower jaw white; a row of red spots on each side, above the lateral vittæ. Abdom. scuta 160. Tail mutilated.

Dimensions.—Length of head, 1 inch 3 lines; greatest breadth, 7 lines; length of body, 2 feet 3 inches, (Tr.;) of tail.

Habitat.—Rio San Pedro, Texas.

Genus CROTALUS, Linn.

GEN. CHAR.—Head very large, triangular, rounded in front, and covered above with small plates anteriorly, and with scales on the vertex and occiput; a deep pit between the eye and nostril; upper jaw armed with a movable fang on each side; body thick, robust; tail short, thick, and terminating in rattles; belly and under surface of tail covered with plates.

CROTALUS LECONTEI, Hallowell.

SP. CHAR.—Head sub-quadrangular, broader behind than in front, much flattened above: plates in front; the upper part of the head, except over the orbits covered with scales; a series of about thirty sub-quadrate brownish blotches along the back, and ten or twelve transverse bands of the same color; brownish bands upon the tail; sub-quadrate blotches along the back, margined with light-yellow; ground-color light-yellow, or straw-color; twenty-eight rows of scales, strongly carinated; abdom. scuta 174; sub-caud. 27.

Description.—The head is of moderate size, sub-quadrangular, broader posteriorly, depressed, covered with scales; small upon the vertex; larger posteriorly, and upon the sides. There are two small plates immediately behind and above the rostral. The supra-orbitar plates are large, rounded externally. The mental plate is triangular, its apex presenting backward. The anterior genecials are quite small; the posterior very large in comparison, in the specimen examined. There are sixteen plates along the margin of the upper jaw, and as many along the margin of the lower. There is a deep pit on each side of the head, not precisely between the eye and the nostril, but immediately below a straight line drawn from the inferior margin of the one to the other. Neck slender; body thicker in the middle, becoming less so towards the tail; tail short, with seven rattles, in the specimen examined; scales strongly carinated upon the back, less so upon the sides; smooth near the abdominal scuta.

Coloration.—Thirty-two distinct, transverse, sub-rhomboidal, brownish-colored blotches upon the back, the twenty-third and twenty-fourth irregular in shape; the twelve remaining bands coalesce, and become confluent with the spots upon the sides, thus forming a transverse row of bands, extending as far as the abdomen. Several of the quadrate spots above described are slightly emarginate anteriorly, but the posterior border is for the most part rounded. Chin, throat, and abdomen, straw-color; under part of tail of the same color, but clouded with dark-colored spots or blotches. There are twenty-seven rows of single subcaudal plates, and one bifid next to the anus. Abdominal plates, 174.

Dimensions.—Length of head, 14 lines; greatest breadth, 11 lines; length of body, 2 feet 2 inches 9 lines; length of tail, exclusive of rattles, 2 inches 6 lines; total length, 2 feet 6 inches 5 lines.

Habitat.—Cross Timbers, and San Antonio, Texas.

Remarks.—Dr. Leconte informs me that he found near the Colorado, about seven hundred miles from the last-mentioned locality, a species of *Crotalus*, which was very abundant in that region, over four feet in length, and which appears to be the same as the one above described. He took the following notes of it upon the spot: "*Crotalus cinereous:* back with a series of sub-rhomboidal spots, margined with dark-brown, and exterior to this a line of white scales; sides with a few darker cinereous spots; beneath, pale ochraceous; neck and under part of head white; tail white, with four black rings, becoming irregular beneath; length, 4½ feet; greatest circumference, 5½ inches; 185 transverse scales beneath on the body—28 sub-caudal; fourteen scales in the oblique rows from spine to side in middle, and on neck nine posteriorly, and on tail. Colorado, March, 1851; the dorsal spots become indistinct behind. Sandy deserts."

In a very young specimen brought by Dr. Woodhouse from San Antonio, Texas, these four black rings are quite distinct.

Remarks.—The animal above described differs from the *confluentus* of Say, in the absence of the confluent anterior vertebral spots, "the ten or twelve anterior ones crowded, confluent;" these spots in the specimen before me being distinct. Neither is each spot widely emarginate before and behind, as he represents it to be in *confluentus*. He describes upwards of forty sub-quadrate spots upon the back; in our specimen there are about thirty. The number of plates upon the tail corresponds very nearly, there being twenty-seven in *confluentus;* but there are twenty-three more abdominal plates in that species than in *Lecontei*. *Confluentus* is found "chiefly in the vicinity of the Rocky mountains."*

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* Account of an expedition from Pittsburg to the Rocky mountains, under the command of Major Stephen H. Long, vol. ii, p. 48.

Order BATRACHIA.

Genus BUFO, Laurenti.

GEN. CHAR.—Head large; mouth extensive; tongue elongated, elliptical, entire, generally a little larger behind—free posteriorly; jaws and palate without teeth; eyes large—pupil elliptical, longitudinally dilatable; tympanum more or less distinct; parotid glands more or less developed; males mostly with a sub-gular vocal vesicle; four fingers, sub-round, free; five toes, of same form, more or less palmate—the last shorter than the penultimate; metatarsal region with two tubercles below—the one at the root of the great-toe largest.

BUFO DORSALIS, Hallowell.

SP. CHAR.—Head short and thick; mouth quite large; a slightly elevated ridge extending from the nostrils to the posterior part of the head, uniting with a transverse one behind the eye; sides and posterior part of the body covered with small warts; extremities covered with small warts and granulations; above dark-brown, with numerous irregular lines of yellow; a vertical line of yellow, continuous with one less distinct upon the head; transverse blotches of black upon the thighs and forearms; under surface ochraceous.

Description.—The head is short and thick, broad posteriorly; the mouth quite large; the upper jaw emarginate. There is a ridge running from near the nostril to the posterior part of the head, on each side, where it meets with another, passing transversely behind the eye; this ridge is very slightly elevated. That part of the upper surface of the head immediately above the eye is covered with numerous warts; the front and middle parts are smooth. The tympanum is of moderate size. The parotids, commencing a short distance above them, are separated from the posterior margin of the orbit by the transverse ridge above described; they are about seven lines in length; the interval between them presents numerous very large warts; they are not observed upon the middle of the upper part of the body; those upon the sides and posterior parts are quite small. Anterior extremities short and stout, covered above with small warts and granulations. Posterior large, stout, and thick, covered with larger warts than upon the anterior extremities, but not so large as those upon the anterior part of the upper surface of the body. A spade-like process at the root of the first toe. Under surface of chin, throat, and abdomen, and under part of thighs, minutely granulated; under surface of thighs smooth.

Coloration.—Above dark-brown, with numerous irregular lines of yellow; a vertical line of yellow, continuous with one which is less distinct, upon the head; transverse blotches of black upon the thighs and forearms; under surface ochraceous.

Dimensions.—Length of head, 8 lines; greatest breadth, 9 lines; length of head and body, 3 inches; length of anterior extremities, 2 inches 2½ lines; of posterior, 3 inches 3 lines.

Remarks.—This animal differs widely from the *Bufo cognatus* and *Americanus*, but resembles the *lentiginosus*, which, Professor Holbrook observes, is found, without doubt, all along the shores of the Gulf of Mexico. It is distinguished from it, however, by the elevation of the ridges above the head, which in *lentiginosus* are highly developed, giving to the upper part of the head a canaliculated appearance—a condition that does not exist in this species.

BUFO PUNCTATUS, Baird and Girard.

SP. CHAR.—Head broad and flattened. covered above with small warts; a slight ridge extending from the nostrils on each side as far as the orbits, terminating in a transverse prolongation; parotids of moderate size, triangular; body slender, covered above with minute orange-colored warts, of a bright vermillion during life; extremities slender, covered with warts of a similar color; total length, 1 inch 9 lines.

Description.—The head is broad and much flattened above, covered with small warts; the nostrils are small, oval, looking outward and upward, and placed within the supraciliary ridge; they are about a line and three quarters apart; there is a slight ridge extending from the nostrils on each side as far as the orbits, and terminating there in a transverse prolongation; the supraciliary ridges project but slightly over the eye; the tympanum is small and oval, slightly beneath the surface, presenting a ridge of small warts in front; eyes of moderate size; no palatine or maxillary teeth; parotids of moderate dimensions, somewhat triangular in shape, covered with very small warts; body rather slender, covered above with minute orange-colored warts of a bright vermillion during life; extremities slender, covered with warts of a similar color.

Coloration.—Head brownish olive above—rest of the animal a dark drab color; throat, abdomen, and under surface of extremities, straw color.

Dimensions.—Length of head, 6 lines; greatest breadth, 7½ lines; length of body, 1 inch 3 lines; of anterior extremities, 11 lines; of posterior, 1 inch 11 lines.

Habitat.—Borders of Rio San Pedro, Texas.

Genus AMBYSTOMA, Tschudi.

GEN. CHAR.—Head large, convex; no parotids; tongue of moderate size; numerous palatine teeth in an uninterrupted transverse series; fingers free; tail oblong, round. (Tschudi.)

AMBYSTOMA NEBULOSUM, Hallowell.

SP. CHAR.—Head as broad as long, rounded in front; palatine teeth in the form of a triangle; the apex directed forward; body brown, with numerous yellow spots; tail longer than neck and body. Total length, 5 inches 9 lines.

Description.—The head is large, depressed above, about as broad as it is long; snout rounded; nostrils small, about 3 lines apart; eyes large and prominent; mouth very large,; tongue broad and flattened, free at its edges, attached at its anterior border; palatine teeth Λ shaped, the angle presenting forward, the extremities of the row being placed a short distance behind the internal nares; neck contracted; posterior extremities stouter than the anterior; body sub-cylindrical, flattened inferiorly; tail longer than the head and body, much compressed, the posterior half especially—quite thin and rounded at its extremity.

Color.—Head brownish above, with numerous indistinct yellowish spots posteriorly; body blackish, presenting many yellowish spots upon the surface, the largest about a line in diameter; extremities blackish, mingled with yellow; tail of same dark hue, with numerous yellow spots and markings; chin, throat, and abdomen, yellowish.

Dimensions.—Length of head, 8 lines; greatest breadth 8 lines; length of neck and body, 2 inches 2 lines; of tail, 2 inches 9 lines; of anterior extremities, 1 inch 3 lines; of posterior, the same. Total length, 5 inches 9 lines.

Habitat.—San Francisco mountain, New Mexico. Very abundant.

Another specimen from the same locality is more uniformly blackish upon the upper surface, the yellowish spots being absent; the chin, throat, and abdomen, are also more distinctly marbled with black and yellow.

Remarks.—The above species differs from the *Proserpine* of Baird and Girard in the shape of the head, and in the coloring; and from the *mavortia* of Baird in the same particulars. The *mavortia*, according to Professor Baird, has about nine transverse bands of yellow on the sides of the body, confluent to a certain extent with that on the belly. He describes similar markings upon the tail, forming nearly complete ellipses, about 12 in number. The *mavortia* is 8 inches in length. This animal will probably form a new genus. In the compressed form of its tail it resembles *Xiphonura*, Tsch.; but in that genus, as well as in *Ambystoma*, the teeth are represented as transverse.

List of reptiles brought by Dr. Woodhouse from the Creek Territory, Western Texas, and New Mexico.

SAURIA.

	Specimens.
Sceloporus spinosus, Weigmann.—From San Antonio, Texas............	1
Sceloporus Thayerii, Baird and Girard.—From San Antonio, Texas.......	1
Sceloporus scalaris, Weigmann.—From San Antonio, Texas...............	1
Sceloporus undulatus, Bosc.—Red fork of the Arkansas, Creek boundary..	1
" " Bosc.—New Mexico, west of the Rio Grande.......	1
Sceloporus marmoratus, Hallowell.—San Antonio.........................	1
Sceloporus delicatissimus, Hallowell.—San Antonio......................	1
Crotaphytus collaris,* Holbrook.—Creek boundary......................	3

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* The specimens of *Crotaphytus* differ considerably in their coloration, in some the ground color being sky-blue, in others light brown, and in others, probably older specimens, dark green; the spots upon the back also vary much in size; in

Crotaphytus collaris, Holbrook.—Western Texas, or country included between San Antonio and Rio Grande	4
Crotaphytus fasciatus, Hallowell.—Jornada del Muerto, New Mexico	2
Crotaphytus Wislizenii, Baird and Girard.—New Mexico, west of Rio Grande	1
Phrynosoma orbiculare, Weigmann.—New Mexico, west of the Rio Grande; nearly all found in the Zuñi mountain	9

Anatomy.—Liver quite large, occupying a considerable portion of the upper and left side of the abdomen; intestine coiled up in the right; lungs of equal length, presenting nothing remarkable; the long and slender prolongation of the right lobe of the liver exists as in *Phrynosoma;* liver divided into several lobes; gall-bladder very distinct; stomach 1 inch and ¾ line in length; intestine 4 inches. The stomach contained several grasshoppers and a small calcareous concretion; the fatty appendages observed in the lower part of the abdomen in *Phryn. cornutum*, and *orbiculare*, exist also in this animal; testes 4 lines long by 3 in breadth, of a white color; kidneys slender, about ½ inch in length.

Phrynosoma cornutum, Harlan.—Western Texas, Rio Grande, below El Paso	1
Phrynosoma cornutum—Creek and Cherokee countries, where it is very abundant	5
Phrynosoma coronatum, Blainville.—Great Deserts of the Colorado	2
Phrynosoma planiceps, Hallowell.—Western Texas and New Mexico	3
Phrynosoma modestum, Girard.—Western Texas, very abundant about the burrows of the *spermophilus*, or prairie dog, adult	4
Anota M'Callii, Hallowell.—Great Desert of the Colorado, between Vallecita and Camp Yuma, 160 miles east of San Diego	1
Cnemidophorus sexlineatus, Dumeril and Bibron.—Creek boundary	1
Cnemidophorus gularis, Baird and Girard.—San Antonio, Texas, and Santa Fé, New Mexico	3
Plestiodon anthracinus, Baird.—Timber of the Arkansas river	1
Plestiodon quinquelineatum, Dumeril and Bibron.—Creek boundary	1
Plestiodon obsoletum, Baird and Girard.—Rio San Pedro, Texas	1
Lygosoma lateralis, Linnæus.—Creek boundary	1
Ophisaurus ventralis, Linnæus.—Creek and Cherokee country, prairies; abundant	1
Elgaria marginata, Hallowell.—New Mexico, West of Rio Grande	1
Lamprosaurus guttulatus, Hallowell.—New Mexico, borders of Rio Grande, above El Paso; rare	1

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some of the specimens they are quite small, in others they are nearly a line in diameter. The liver in one of these presented numerous white points, disseminated over its upper and under surface, which, on examination by Dr. Leidy, were found to be distoma sacks, each containing several distomata. In one of the specimens a calculous concretion was observed in the cloaca, half an inch in length by 3½ lines in breadth. This species is very abundant in the Creek boundary, among rocks on the borders of streams, and also in the valley of the Rio Grande running in the barrens, among bushes.

Holbrookia texana, Baird and Girard.—Western Texas	2
Holbrookia affinis, Baird and Girard.—Western Texas	1
Holbrookia maculata,* Baird and Girard.—Creek boundary; very abundant in that region	3
Holbrookia maculata, Baird and Girard.—Western Texas, barrens, and among towns of *Spermophilus ludovicianus*, or prairie dog	14
Holbrookia maculata, Baird and Girard.—New Mexico, west of the Rio Grande	5

OPHIDIA.

INNOCUOUS SERPENTS.

Coluber alleghaniensis, Holbrook.—Creek boundary	1
Psammophis flavigularis, Hallowell.—Cross Timbers; very abundant	2
" " Hallowell.—New Mexico	2
Pityophis affinis, Hallowell.—Near Zuñi river, New Mexico	2
Leptophis æstiva, Linnæus.—San Antonio, Texas; abundant in the Creek country	1
Leptophis tæniata, Hallowell.—New Mexico, west of Rio Grande	1
Tropidonotus proximus, Say.—Creek country	1
Tropidonotus Woodhousii, Hallowell.—Creek boundary	1
Tropidonotus ordinatus, Linnæus.—Western Texas	4
" " Linnæus.—New Mexico, west of Rio Grande	5
Tropidonotus rhombifer, Hallowell.—Creek country	2

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* *Anatomy.*—On opening the abdomen, the ova presented themselves about the size of peas, the greater number being situated on its right side; the liver, of moderate size, extends across the upper portion of the abdominal cavity, lying in front of the ovaries and in contact with the stomach, which is quite large, being distended with food; it lies in the left side of the abdominal cavity, immediately above the liver, and in contact posteriorly with the ovary; the intestines occupy the middle portion of this cavity, being imbedded among the ova; the heart is small, and presents nothing remarkable; the lungs are of equal size, about 6 lines in length, and lie in the posterior part of the cavity common to the thorax and abdomen, and are in contact with the ribs and spine posteriorly and the stomach in front; the liver is remarkable for the great extension of its right lobe, which is quite slender, and reaches nearly as far as the posterior extremity of the abdominal cavity; the stomach measures 11 lines in length by about 3 in breadth; it contains the remains of several grasshoppers and of a coleopterous insect; the intestines are about 2 inches 4 lines in extent, and much contracted at intervals; about 7 lines from the inferior extremity of the intestine is a contraction more marked than the rest, resembling a natural division into small and large intestine; seven ova were counted in the ovary; a small reddish calculous concretion was observed at the entrance of the cloaca; the kidneys are two small bodies, about 3 lines in length by 2 in breadth: they appear to consist of a congeries of granules of nearly equal size, but differing somewhat in shape. In another specimen, a male, the stomach was found to contain the remains of various insects, (two asili, the pupa of an hymenopterous insect, and several ants;) the testes were about 6 lines in length, beautifully convoluted, the epididymis distended with spermatic fluid

Tropidonotus transversus, Hallowell.—Creek country	2
Heterodon platyrhynos, Latreille.—Near Rio San Pedro, Texas—a remarkably fine specimen	1
Heterodon nasicus, Baird and Girard.—San Antonio, Texas, and Santa Fé, New Mexico, one from each locality	2
Coronella Sayii, Schlegel.—Creek boundary, north fork of the Arkansas	1
Calamaria elapsoidea, Holbrook.—Creek boundary	1

VENOMOUS SERPENTS.

Crotalus Lecontei, Hallowell.—One from Cross Timbers, the other from San Antonio, Texas; abundant; found also by Dr. Leconte at the mouth of the Gila, California	2
Crotalophorus tergeminus, Say.—Neosho river, Creek country	1
Crotalophorus miliarius, Linnæus.—Creek country	1
Trigonocephalus contortrix, Linnæus.—Creek country; abundant	1
Trigonocephalus atrofuscus, Troost.—Creek boundary; very abundant about all the creeks and tributaries of the Arkansas	1

BATRACHIA.

Rana areolata, (young) Baird and Girard.—San Francisco mountain, New Mexico	1
Bufo punctatus, Baird and Girard.—Rio San Pedro, Texas	1
Bufo dorsalis, Hallowell.—San Francisco mountain, New Mexico	1
Ambystoma nebulosum, Hallowell.—San Francisco mountain; very abundant in the woods	1
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including those brought by Col. M'Call, and one by Dr. J. F. Hammond.

NOTE.—The route pursued by Dr. Woodhouse was from San Antonio, Texas, passing over the road laid out by Brevet Lieutenant Colonel J. E. Johnson, Topographical Engineers, 1849, between San Antonio and El Paso, from El Paso, following the Rio Grande to Santa Fé, New Mexico. The western route, west of the Rio Grande, was from Albuquerque to the pueblo of Zuñi. For rest of route see map of Brevet Captain Sitgreaves' report.

FISHES.

BY SPENCER F. BAIRD AND CHARLES GIRARD.

Genus GILA, B. and G.

GEN. CHAR.—Body subfusiform, compressed; back more or less arched, especially in large specimens, sometimes tapering very much posteriorly, with the peduncle of the tail rather slender; head depressed, proportionally small; upper outline concave; snout elongated; eyes circular or elliptical; mouth of medium size; upper jaw generally overlapping the lower, so as to conceal its cleft from above; no barbels, nor rudiments of barbels, at the angle of the mouth; pharyngeal teeth oblique, compressed, disposed on two rows, with their tip slightly hooked; branchial arches, four; scales varying in size according to the regions; small and not imbricated on the back, larger on the flanks, and of medium size on the belly and tail; lateral line well defined, forming an open curve on the abdomen, and straight on the tail; caudal fin forked or crescentic.

SYN.—*Gila*, B. and G., Proc. Acad. Nat. Sc., Phila., VI, 1853, 368.

1. GILA ROBUSTA, B. and G. Fishes, Pl. I.

SPEC. CHAR.—Body very stout anteriorly, tapering suddenly to the tail; eyes near the upper margin of the head; scales sub-elliptical.

SYN.—*Gila robusta*, B. and G., Proc. Acad. Nat. Sci., Phila., VI, 1853, 369.

General shape of the body subfusiform, very much swollen anteriorly, and tapering very suddenly from the dorsal fin towards the base of the caudal. The body itself is compressed; its greatest depth, in the middle of the distance between the occiput and the anterior margin of the dorsal fin, is three inches and a quarter; whilst its least depth, on the middle of the peduncle of the tail, is a little less than an inch. The greatest thickness at the origin of the body is one inch and three-quarters, and on the middle of the peduncle of the tail, half an inch.

The head is very much depressed above, and slopes rapidly from the nape to the snout. It constitutes one-fourth of the total length, measured from the snout to the posterior margin of the operculum. The upper part of the head is contained six times in the length. The eyes are proportionally small, subcircular, elongated longitudinally into an elliptical shape. Their diameter enters about eight times in the length of the side of the head, and three times from the tip of the snout to the pupil. The nostrils, very broadly open, are situated near to the upper part of the head, and much nearer the orbit than the end of the snout. The mouth is tolerably large, and the jaws are surrounded by quite conspicuous lips, but deprived of barbels of any kind. The posterior extremity of the maxillary does not reach a vertical line from the pupil, though extending beyond the anterior rim of the orbit. The upper jaw overlaps the lower one as seen in figures 2 and 3. The branchiostegal rays are six in number, three on either side, very broadly flattened and closely combined. The gill openings are quite large, being only separated beneath by an isthmus of six-eighths of an inch. Mucous pores on the head are not conspicuous; a series, however, more apparent than the rest, may be traced from the occiput to the snout, passing under the eye.

The dorsal fin, situated exactly on the middle of the back, is a little higher than long, and slightly concave on its upper margin; it is composed of nine soft rays, and a rudimentary spine. The posterior ray is the shortest, and half the height of the anterior soft, or the highest one. All, but the latter, bifurcate three times, though the branches of the third bifurcation remain in close contiguity. The caudal fin is posteriorly emarginated in the shape of a crescent, the upper and lower lobe being symmetrical; it is composed of nineteen, sometimes only eighteen, well developed rays, and fifteen rudiments, eight of them above and seven below. The sixteen medial ones are bifurcated three times in the same manner as in the dorsal fin. The anal, situated back of the dorsal, has pretty much the same shape with it, being higher than long, and slightly concave exteriorly, but it is proportionally lower posteriorly, the anterior soft ray having almost three times the height of the posterior. The rays of which it is composed are bifurcated like those of the dorsal, the anterior soft one, however, remaining undivided. The ventrals, uniformly rounded posteriorly, are inserted in advance of the anterior margin of the dorsal, and when bent backwards they do not reach the anus, in the female; they are, however, longer in the male. They are composed of nine rays, all soft, but the anterior one is undivided and shorter than the second; the last and shortest is likewise undivided; the intermediate ones are bifurcated as in the anal, caudal, and dorsal. The pectorals are very broad exteriorly, composed of fifteen or seventeen soft, and three times bifurcated, rays, the three last ones very slender and small. Their posterior extremity, when brought backwards, does not reach the insertion of the ventrals in the female; whilst in the male they extend beyond. Formula of the fins:

Br. 3. 3; D I. 9; C 8. I. 8. 8. I. 7; A I. 9; V I. 9; P 15.

The scales are quite diversified, and of different sizes on the different regions of the body. They are very small on the dorsal region, between the occiput and dorsal fin; they increase somewhat in size between the dorsal and caudal fins, and become almost uniform on the tail. Those on the flanks are the largest and most conspicuous, whilst their size is again reduced on the belly, from the throat to the anal fin. The lateral line is very distinct, making a slight inflexion on the flanks, running through the middle region of the tail to the caudal fin.

The color is uniform grayish brown above, yellowish beneath. The fins assume the tints of the region of the body to which they belong.

Several specimens of this species were collected by Dr. Woodhouse in the Zuñi river.

Fig. 1 represents the fish reduced one-half the natural size.

Fig. 2, head viewed from above, showing the situation of the eyes and nostrils.

Fig. 3, head from below, showing the shape of the mouth and branchiostegal apparatus.

Fig. 4, enlarged scale from the lateral line.

Fig. 5, enlarged scale from the middle of the back.

Fig. 6, enlarged scale from the belly.

Figs. 4, 5, and 6, are magnified under the same diameter, thus preserving the exact proportion of the different scales.

2. GILA ELEGANS, B. and G. Fishes, Pl. II.

SPEC. CHAR.—Body very slender; tail very much attenuated; fins very much developed; scales sub-elliptical, narrowing slightly posteriorly.

SYN.—*Gila elegans*, B. and G., Proc. Acad. Nat. Sc., Phila., VI., 1853, 369.

The present species is very closely allied to the preceding one, which it resembles in the general configuration of the head, body, and fins. Its most striking peculiarity consists in its more elongated and more slender body, and especially in its more slender tail and more developed caudal, which is likewise more deeply emarginated. Indeed, all the fins are proportionally more developed. The specimen before us is nearly 12 inches long, the head forming the fifth of that length. The greatest depth of the body, in advance of the dorsal, enters seven times in the total length. The greatest thickness is about the half of the depth.

The head is very much depressed and flattened on the snout The eyes are elliptical; their diameter entering seven times in the length of the side of the head, and twice in the distance between the end of the snout and the anterior rim of the orbit. The nostrils are situated entirely on the upper surface of the snout, nearer to the eye than to the extremity of the latter. The mouth is inferior, the upper jaw overlapping the lower; the posterior extremity of the maxillary extending to a vertical line, passing in advance of the orbit—that is, not quite as far back as in the preceding species. The isthmus is very small, measuring only three-sixteenths of an inch.

The soft rays in all the fins have the same general structure as in the preceding species; in the dorsal and anal they are preceded by three rudimentary spines instead of one. The number of the rays is somewhat different, as shown in the following formula:

Br. 3. 3; D III. 9; C 9. I. 9. 9. I. 10; A III. 10; V 9; P 16.

The scales differ from those of the preceding species in being more elongated, sub-elliptical, anteriorly broader than posteriorly. The lateral line is similar in both species.

The color is uniform reddish brown above, silvery yellow beneath; the fins are dull yellow.

One specimen was collected by Dr. Woodhouse in the Zuñi river.

Fig. 1 represents this species in profile one-half its natural size.

Fig. 2, the head from above; the eyes are but slightly visible.

Fig. 3, the head from below, showing part of the eyes, mouth, and branchiostegal apparatus.

Fig. 4, enlarged scale from the lateral line.

Fig. 5, enlarged scale from the back.

Fig. 6, enlarged scale from the belly.

Figs. 4, 5, and 6, under the same magnifying power.

GILA GRACILIS, B. and G. Fishes, Pl. III.

SPEC. CHAR.—Body nearly fusiform; head nearly conical; scales sub-circular; eyes proportionally large.

SYN.—*Gila gracilis*, B. and G., Proc. Acad. Nat. Sc., Phila., VI, 1853, 369.

General shape sub-fusiform; body compressed. Total length, four and a quarter inches. Greatest depth immediately in advance of the dorsal fin, one inch, contained nearly five times and a half in the length. The greatest thickness at the origin of the body is five-eighths of an inch: its relation to the depth is as 5 to 8, and is comprised eight times and a half in the length.

The head is sub-quadrangularly conical, very slightly depressed above; measured from snout to posterior margin of preoperculum, it forms one-fourth of the total length, and from snout to nape it enters in it almost six times. The eyes are proportionally large and sub-circular; their longitudinal diameter being contained four times in the length of the side of the head, from the snout to the posterior margin of the preoperculum. The nostrils, situated towards the upper surface of the head, are much nearer to the orbit than to the tip of the snout. Upper jaw overlaps the tip of the lower one; the posterior extremity of the maxillary extends slightly beyond a perpendicular line, which would pass in advance of the orbit. Branchiostegal rays three, very much flattened and closely combined in their membrane. The gill openings are proportionally large, separated underneath by an isthmus of three-sixteenths of an inch. Series of mucous pores may be traced from the origin of the lateral line across the nape, hence to the nostrils along the parietal region; also downwards along the preoperculum to the angle of the mouth, and under the orbit towards the snout.

The dorsal fin, a little higher than long, is situated exactly on the middle of the back; its upper margin is slightly concave. It is composed of eight soft and bifurcated rays (the last one being double from its base), and of three spiny ones, the first of which very short and rudimentary—the two others, extending beyond the middle of the anterior, soft. The eight soft rays are bifurcated from the middle, and again from the two-thirds of their length; the last is to the longest as 2 is to 5. The caudal fin is posteriorly deeply emarginated, the upper and lower lobes equal, the rays being likewise twice bifurcated on their length. It is composed of twenty-three rays and fifteen rudiments, eight of them above and seven below. The anal resembles the dorsal in shape and proportions, being slightly convex exteriorly and higher than long. It is likewise composed of eight soft, twice bifurcated rays, and three anterior spines. Its anterior basal margin is situated a little backwards of the posterior margin of the dorsal. The ventrals are sub-oval, composed of a rudimentary spine and eight soft rays, the bifurcation of seven of which affects the last third of their length. The base of insertion of these fins is somewhat in advance of the dorsal, and when bent backwards their tip reaches the anus, and occasionally the anterior margin of the anal. The pectorals are sub-triangular, tapering posteriorly; their insertion is close to the head, more inferiorly than superiorly: their extremity does not reach the anterior margin of the ventrals, and consequently not that of the dorsal. They are composed of fifteen soft rays, which bifurcate beyond the two-thirds of their length. The formula of the fins is as follows:

Br. 3. 3; D. III. 8; C 8. I. 10. 11. I. 7; A III. 8; V I. 8; P 16.

The anus is situated close to the anal fin, and nearer to the extremity of the caudal than to the end of the snout. The scales, in general, are rather small, thin, and sub-circular. The smallest ones occur between the dorsal fin and the occiput, and especially on the latter region. From the middle of the flanks they increase in size downwards, with a slight imbrication, till near the abdomen, when they diminish on to the belly, where they again lose their imbrication. The lateral line makes a gently concave curve on the abdomen, passing through the region of the largest scales of the body, being very conspicuous from the head to the tail.

The color is uniformly yellowish-brown on the head and along the dorsal region, covered with the smallest scales. The sides and belly are shining silvery white. The fins yellowish; the anal, ventrals, and pectorals, lighter than the caudal and dorsal.

Several specimens of this species were collected by Dr. Woodhouse in the Zuñi river.

Fig. 1 represents the specimen described, of natural size.

Fig. 2 is a view of the head from above, in order to exhibit its shape, the structure and situation of the nostrils, and their relation to the eyes.

Fig. 3 exhibits the head from below, showing the shape of the mouth and branchiostegal apparatus.

Fig. 4, enlarged scale from the lateral line.

Fig. 5, enlarged scale from the back.

Fig. 6, enlarged scale from the belly.

Figs. 4, 5, and 6, seen under the same magnifying power.

BOTANY.

BOTANY, BY PROFESSOR JOHN TORREY.

BOTANY.[1]

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RANUNCULACEÆ.

Clematis ligusticæfolia, Nutt., in Torr. and Gray, Fl. 1, p. 9; Gray Pl. Fendl., p. 3. San Francisco mountain; October.

Delphinium azureum, Michx.; Torr. and Gray, l. c. Zuñi mountain; August; and Laguna Encinatio; October.

Thalictrum Fendleri, Engelm., in Pl. Fendl., p. 5; Gray, Pl. Wright. 2, p. 7. Rio Zuñi; August, (fem. plant;) Bill Williams's river, October. A very distinct species.

BERBERIDACEÆ.

Berberis pinnata, Lagasca, Eleuch., p. 6; Torr. in Emory's report, p. 136. *B. fascicularis*, D. C. Syst. 2, p. 19.

Southern border of New Mexico; in fruit, October. Our specimens have much smaller leaves than are represented in Delessert's figure, (Icon. 2, t. 3,) and the leaflets are not more than three pairs. The same plant was collected by Frémont in northern California, and by Emory on the highlands bordering the Gila.

CRUCIFERÆ.

Turritis patula, Graham; Torr. and Gray, Fl. 2, p. 79; Gray, Pl. Wright. 2, p. 10. San Francisco mountain; October, (fruit.) Dr. Gray states (l. c.) that *Streptanthus virgatus* Nutt. is not distinct from this species.

Vesicaria stenophylla, Gray, Pl. Lindh., 2, p. 149, (adult.) Rio Zuñi; September.

Streptanthus linearifolius, Gray, Pl. Fendl., p. 7; Pl. Wright. 1, p. 7; Pl. Wright. 2, p. 10. Zuñi mountain; August. The root is perennial. The flowers are quite showy.

Thelypodium Wrightii, Gray, Pl. Wright. 1, p. 7, and 2, p. 12. Acoma; August.

Dithyrea Wislizeni, Engelm., in Wislizen. Mem. N. Mex., p. 96; Gray, Pl. Wright. 1, p. 10. Rio Zuñi; September.

Stanleya integrifolia, James, in Long's first exped., 2, p. 17; Torr., in Am. Lyc., N. York, 2, p. 166; Torr. and Gray, Fl. 1, p. 97.

On the Zuñi and Little Colorado rivers; September, October. It is possible that both this species and *S. heterophylla*, Linn., are only states of *S. pinnatifida*, Nutt.

CAPPARIDACEÆ.

Cleome integrifolia, Torr. and Gray, Fl. 1, p. 122; Gray, Gen. Ill., t. 76. Inscription Rock, New Mexico; August.

PORTULACACEÆ.

Portulaca oleracea, Linn.; Engelm., in Gray Plant. Lindheim. 2, p. 154, (in adnot.) Rio Zuñi; September.

Talinum brevifolium, (n. sp.;) radice crasso; caule erecto patulo folioso; foliis angusto-spathulatis carnosis obtusis; floribus axillaribus terminalibusque solitariis; pedunculis brevissimis; sepalis ovatis obtusis; petalis obovatis; staminibus sub-20; seminibus lævibus.

On the Little Colorado; September. Root very thick, and somewhat branching; stem 2–5 inches high, with numerous simple spreading branches; leaves 6–8 lines long, 5½–2 lines wide, crowded; flowers, few toward the summit of the branches, about as large as in *S. teretifolium;* the peduncles erect in fruit; sepals broadly ovate, veined; style about as long as the ovary, three-cleft at the summit; seeds quite even, scarcely shining.

MALVACEÆ.

Sidalcea malvæflora, Gray, Pl. Wright. 1, p. 16. *S. Neo-Mexicana*, Gray, Pl. Fendl., p. 23. *Sida malvæflora*, Moç. and Sesse. Laguna Creek, to the western borders of New Mexico; August, October.

Sphæralcea incana, var. *oblongifolia*, Gray, Pl. Wright. 2, p. 21. Inscription Rock; August.

LINACEÆ.

Linum perenne, Linn.; Torr. and Gray, Fl. 1, p. 204. Zuñi mountains; August.

GERANIACEÆ.

Geranium cæspitosum, James, in Long's Exped. 2, p. 3; Gray, Pl. Fendl., p. 25. On the Zuñi and San Francisco mountains, New Mexico; August, October.

This rare species first discovered about thirty years ago, by Dr. James, and was not found again for more than a quarter of a century, when Fendler collected it, near Santa Fé.

ZYGOPHYLLACEÆ.

Kallstrœmeria maxima, Torr. and Gray, Fl. 1, p. 213. On the Zuñi and Little Colorado rivers; September.

VITACEÆ.

Vitis æstivalis, Michx. Fl., 2, p. 230; Torr. and Gray, Fl. 1, p. 244. Yampai creek.

Ampelopsis quinquefolia, Michx. Fl., l. c.; Torr. and Gray, l. c. With the preceding. This plant has not been found before so far west.

RHAMNACEÆ.

Frangula Californica, Gray, Gen. Ill., 2, p. 178. *Rhamnus tomentellus*, Benth. *R. oleifolius*, Hook. Fl. Bor. Amer., 1, p. 223. Yampai river.

Ceanothus Fendleri, Gray, Pl. Fendl., p. 29. San Francisco mountain.

There are neither flowers nor fruit on our specimens. The leaves are larger than in Fendler's plant, some of them being more than an inch long.

ANACARDIACEÆ.

Rhus trilobata, Nutt., in Torr. and Gray, Fl. 1, p. 219; Gray, Pl. Fendl., p. 28. Western limits of New Mexico. Leaves and young branches clothed with a dense velvety pubescence.

LEGUMINOSÆ.

Vicia pulchella, H. B. K.? Gray, Pl. Wright. 2, p. 32. Laguna Encmatio; October.

The specimens in this collection wholly agree with those numbered 943, Pl. Wright. II.

Lathyrus polymorphus, Nutt.; Torr. and Gray, Fl. 1, p. 277; Gray, Pl. Fendl., p. 30. Rio Zuñi; September.

L. linearis, Nutt., in Torr. and Gray, Fl. l. c.; Gray, Pl. 2, p. 32. Zuñi mountain, August.

L. palustris, Linn.? var. foliis elongatis, &c., Gray, Pl. Wright. 2, p. 32. Inscription Rock; August.

Our plant is exactly like Wright's 946, 1851. Some of the leaflets are nearly four inches long, and scarcely two lines wide.

L. myrtifolius, Muhl.; Torr. and Gray, Fl. 1, p. 275. Laguna Enematio; October.

Phaseolus leiospermus, Torr. and Gray, Fl. 1, p. 280. Laguna Enematio.

Psoralea floribunda, Nutt., in Torr. and Gray, Fl. 1, p. 300. Zuñi mountain; August; and Bill Williams's river; October.

Amorpha fruticosa, Linn; Torr. and Gray, Fl. 1, p. 305. Bill Williams's river; not in flower.

Eysenhardtia amorphoides, H. B. K.; Gray, Pl. Lindh., 2, p. 173; and Pl. Wright. 1, p. 45. Rio Zuñi.

Glycirrhiza lepidota, Nutt. Gen. 2, p. 106; Torr. and Gray, Fl. 1, p. 298. Rio Laguna; August, (fruit.)

Trifolium involucratum, Willd.; D. C. Prodr., 2, p. 204; Gray, Plant. Fendl., p. 33. Laguna Enematio; October.

T. tridentatum, Lindl. Bot. Reg., t. 1070. *T. involucratum*, Torr. and Gray, Fl. 1, p. 318, non. Willd. Ojo Pescado, on the Zuñi; August.

Hosackia Wrightii, Gray, Pl. Wright. 2, p. 43. Laguna Enematio and San Francisco mountains; October.

The peduncles of all the flowers in our specimens are extremely short. The stem is suffrutescent.

Oxytropis Lamberti, Pursh; Torr. and Gray, Fl. 1, p. 339. San Francisco mountain; October.

Astragalus Fendleri, Gray, Pl. Wright., 2, p. 45. *Phaca Fendleri*, Gray, Pl. Fendl., p. 36. Western borders of New Mexico; October, (in fruit.)

A. Missouriensis, Nutt. Gen. 2, p. 99; Torr. and Gray, Fl. 1, p. 331. On the Rio Grande, below Doña Ana; July.

Lupinus Mexicanus, Lagasca; Gray, Pl. Wright. 2, p. 49. San Francisco mountain; October.

Our specimens agree very well with Wright's 1020 of Coll., 1851.

L. pusillus, Pursh; Torr. and Gray, Fl. 9, p. 374. Zuñi mountains; August.

Algarobia glandulosa, Torr. and Gray, Fl. 1, p. 399; Gray, Pl. Wright. 1, p. 60. On the Rio Colorado; November.

Acacia Greggii, Gray, Pl. Wright. 1, p. 65. On Yampai creek. The specimens are without flowers or fruit.

Strombocarpa odorata, *Prosopis adorata*, Torr., in Frem. 2d report, 1, p. 313, t. 1. On the Rio Colorado of the west.

ROSACEÆ.

Cercocarpus parvifolius, Nutt., in Torr. and Gray, Fl. 1, p. 427. Bill Williams' river; October, (fruit.)

Cowania Stansburyana, Torr., in Stansbury's report, t. 3, with the preceding; October, (flower and fruit.)

This species is readily distinguished from *C. Mexicana*, which it much resembles, by the pinnatified leaves.

Fallugia paradoxa, Torr., in Emory's report, p. —, t. 2, Gray, Pl. Fendl., p. 41; Pl. Wright. 1, p. 68. On the Zuñi and Yampai creek; November, (flowers and fruit.)

Potentilla diffusa, Gray, Pl. Fendl., p. 41. Zuñi mountain; August.

Horkelia? multifoliolata, sp. nov.; glabrescens; foliis radicalibus 51-81-foliolatis; foliolis lato-obovatis approximatis, apice 2-4-lobis, vel subintegris; petalis oblongo-cuneiformibus; staminibus 20; carpellis paucis. Western borders of New Mexico; October.

A remarkable species, nearly allied to one collected in northern California, by the botanists of Captain Wilkes's exploring expedition. From *Horkelia* it differs in its numerous stamens and filiform filaments; from *Potentilla* in its companulate calyx and narrow unguiculate petals; from both in its few carpels, which seldom exceed six in number.

Photinia arbutifolia, Lindl.; Torr. and Gray, Fl. 1, p. 473. Western borders of New Mexico; October, (fruit.)

The leaves, in our only specimen, are rather obtuse, and slightly serrate. The fruit contains but one perfect seed.

Rosa blanda, Ait.; Torr. and Gray, Fl. 1, p. 459; var.? Nearly glabrous, leaflets mostly 9; prickles scattered, slender, slightly curved. Western borders of New Mexico. Our specimens are without flowers or fruit.

ONAGRACEÆ.

Epilobium coloratum, Muhl.; Torr. and Gray, Fl. 1, p. 489. Laguna creek and Zuni mountains; August; in flower and fruit.

Œnothera biennis, Linn.; Torr. and Gray, Fl. 1, p. 492; Yampai creek; October; in fruit.

Œ. coronopifolia, Torr. and Gray, Fl. 1, p. 495; Gray, Pl. Fendl., p. 43. Yampai creek; October.

Œ. Hartwegi, Benth. Pl. Hartw., p. 1, var. foliis angusto linearibus. Little Colorado, September.

Gaura coccinea, Nutt.; Torr. and Gray, Fl. 1, p. 518. Near the puebla of Laguna; August; in fruit.

LOASACEÆ.

Mentzelia (Bartonia) multiflora, Nutt. Pl. Gamb., p. 180; Gray, Pl. Fendl. p. 48, and Pl. Wright. 1, p. 74. Western part of New Mexico. The only specimen is in fruit; which is urceolate-turbinate.

GROSSULACEÆ.

Ribes irriguum, Dougl. in Hort. Trans., 7, p. 516; Torr. and Gray, Fl. 1, p. 547. San Francisco mountain.

R. cereum, Dougl. l. c.; Torr. and Gray, l. c. Zuñi mountains; August; in flower and fruit.

R. aureum, Pursh, Fl. 1, p. 164; Torr. and Gray, l. c. On Yampai creek.

SAXIFRAGACEÆ.

Heuchera rubescens, Torr. in Stansb. Rep. p. 388, t. 5; Gray, Pl. Wright. 2, p. 65. Western part of New Mexico; October. The specimens belong to the large form collected by Mr. Wright and described by Dr. Gray, (l. c.)

UMBELLIFERÆ.

Berula angustifolia, Koch, Fl. Germ. and Helv. 2, p. 317? Gray, Pl. Fendl. p. 55, and Pl. Wright. 2, p. 65. *Sium pusillum*, Nutt. in Torr. and Gray, Fl. 1, p. 611. *S.? incisum*, Torr. in Frémont's Rep., p. 90. *Helosciadium? Californicum*, Hook. and Arn. Bot. Beech. p. 142? On the Laguna; August.

This plant is widely diffused through the United States. I have specimens from Michigan, collected by the late Dr. Wright: from East Florida, sent by Mr. Buckley; from Col. Frémont, collected on the north fork of the Platte. Dr. Gray has also, in the works above quoted, enumerated several other stations for it. It was found by Dr. Pickering in Oregon, from whence also Mr. Nuttall obtained his *Sium pusillum*, which is pretty certainly our plant. If the plant of Beechey be the same, then it is also a native of California. I have carefully sought, as Dr. Gray has also done, for characters to distinguish it specifically from the European *B. angustifolia*, but have not found them. The chief differences are the narrower fruit, and the entire (not subincised) leaflets of the involucre.

Peucedanum triternatum, Nutt. in Torr. and Gray, Fl. 1, p. 626. *Seseli biternatum*, Pursh, D. C. Prodr. 4, p. 196; Hook. Fl. Bor. Amer. 1, p. 204, t. 94. Laguna Enematio; October; in flower and fruit.

LORANTHACEÆ.

Phoradendron flavescens, Nutt. in Jour. Acad. Philad., (n. ser.) 1, p. 185; Engelm. in Gray, Pl. Fendl., p. 59, and in Gray, Pl. Lindh. 2, p. 213. *Viscum flavescens*, Pursh, Torr. and Gray, Fl. 1, p. 654. Western part of New Mexico; November.

P. juniperinum, Engelm. in Gray, Pl. Fendl. l. c. Parasitic on Juniperus. Little Colorado, and on the San Francisco mountain.

P. Californicum, Nutt. l. c. Engelm. in Gray, Pl. Lindh. 2, p. 213. Parasitic on Strombocarpus. Colorado of California; November; in fruit.

COMPOSITÆ.

Pectis angustifolia, Torr. in Am. Lyc. Nat. Hist. N. York, 2, p. 62. *Pectidopsis angustifolia*, D. C. Prodr. 7, p.—. On the Rio Zuñi and on a mountain between Acona and Laguna. August, September.

Eupatorium ageratifolium, Torr. and Gray, Fl. 2, p. 90. *β. herbaceum*, Gray, Pl. Wright. 2, p. 74. San Francisco mountain and Laguna Enematio, New Mexico; October. Heads mostly about 20-flowered.

Machæranthera canescens, var. *latifolia*, Gray. Pl. Wright. 2, p. 75. *Dieteria asteroides*, Torr. in Emory's report.

There are three forms of this species in the collection; 1, with several erect stems, a caudex, which bears a dense tuft of leaves, with the scales of the involucre slightly squarrose; 2, with loose assurgent branches and strongly squarrose involucral scales; 3, with small, narrow, nearly entire leaves. The first occurs on San Francisco mountain; the second on Yampai creek; and the third along the Colorado. October, November.

Aster pauciflorus, Nutt. Gen. 2, p. 154. Torr. and Fl. 2, p. 164. Rio Laguna; August. This species certainly perennial.

A. angustus, Torr. and Gr. Fl. 2, p. 162. *Tripolium angustum*, Lindh. Diffuse and branching from the root, which is annual. Rio Zuñi, near the Puebla. September.

A. multiflorus, var. *commutatus*. New Mexico; October. This is one of the smaller leaved forms.

Erigeron macranthum, Nutt. in Trans. Amer. Phil. Soc. (n. ser.) 7, p. 310; Torr. and Gray, Fl. 2, p. 173. Zuñi mountain; August.

E. delphinifolium, Willd. Hort. Berol., t. 90; Gray, Pl. Wright. 2, p. 77, wit the preceding; Laguna Enematio, &c. September, October.

E. divergens, Torr. and Gr., Fl. 2, p. 175, Gray, Pl. Wr. 1, p. 91. Laguna Enematio; October.

Townsendia strigosa, Nutt. l. c. Gray, Pl. Fendl., p. 70, Rio Zuñi. September.

Guttierezia Euthamiæ, Torr. and Gr. Fl. 2, p. 193. Zuñi mountain; August.

G. microcephala, Gray, Pl. Fendl., p. 74. Rio Zuñi. The heads were mostly two-flowered.

Solidago mollis, Bartl. Gray, Pl. Wright. 2, p. 79. *S. incana*, Torr. and Gr., l. c. San Francisco mountain; October.

Linosyris pulchella, Gray, Pl. Wright. 1, p. 96. Little Colorado; October.

L. depressa, Nutt. Pl. Gamb. p. 171, (under *Chrysothamnus*.) Mountains of New Mexico; September.

The only specimen in the collection agrees exactly with the description of Nuttall in the work quoted. Mr. N. is still of opinion that his Genus *Chrysothamnus* ought to be retained.

L. graveolens, Torr. and Gr., Fl. 2, p. 234. Near Laguna; August.

Aplopappus spinulosus, D. C., Torr. and Gr., Fl. 2, p. 240. Mountain ridge between Laguna and Acona.

A. Nuttallii, Torr. and Gr. l. c. *Eriocarpum grindelioides*, Nutt. Trans. Amer. Phil. Soc. 7, p. 321. On the Rio Zuñi; September.

This well-marked species has not hitherto been found since it was detected by Mr. Nuttall in Oregon.

A. (Pyrrocoma) racemosa, Torr. and Gray, Fl. 2, p. 244. *Homopappus racemosus*, Nutt. l. c. On the Laguna; October.

A stout plant, with the heads more than an inch in diameter, the rays inconspicuous, and the achenia glabrous. Hitherto this species has been found only on the plains of the Wahlamet, in Oregon.

Chrysopsis villosa, Nutt. Torr. and Gray, Fl. 2, p. 255. San Francisco mountain, and on the Little Colorado; September.

C. canescens, Torr. and Gr., l. c. Rio Laguna; August.

Baccharis brachyphylla, Gray, Pl. Wright. 2, p. 83, var? foliis minutis obovato-spatulatis, vel cuneatis integerrimis vel raro apice utrinque unidentatis, involucre pleuriseriatis, squamis lanceolatis obtusiusculis glabris. Yampai creek; November.

Shrubby, with numerous erect branches, which are covered with a resinous aromatic varnish. Leaves mostly about one-third of an inch long, somewhat appressed, rigid, obtuse; sometimes rather acute, mostly entire. Heads 3–4 lines long, either solitary and terminating the numerous branches, or several together, and nearly sessile. Involucre hemispherical-turbinate, the scales closely appressed, in four or five series. Achenia glabrous. Pappus pale fulvous, about three times the length of the achenia. Accompanying the specimens, (which were female only) and adhering to one of them, was a linear-lanceolate glabrous entire leaf, nearly three inches in length, which seems to have belonged to the lower part of the plant. A species of *Baccharis* nearly allied to this, but apparently distinct, was collected by Major Emory on the Gila, in 1846, and is one of those alluded to in the botanical appendix to his report. It differs from the plant here described in its smaller and narrower leaves, larger heads, broader and more obtuse involucral scales, with longer and finer pappus. It is very abundant in the valley of the Gila, forming dense "bunches."

Tessaria borealis, Torr. and Gray, in Emory's rep., p. 143, Gray; Pl. Fendl., p. 75; Pl. Wright. 1, p. 102. On the Colorado; abundant on the sand-banks. The long straight branches are used for arrows by the Indians, whence it is called "arrow-wood" by travellers. November.

Ambrosia psilostachya, D. C., Prodr. 5, p. 526; Gray, Pl. Wright. 1, p. 104, (adult.) Bill Williams's river; October.

Franseria Hookeriana, Nutt.; Torr. and Gray, Fl. 2, p. 294. Near the puebla of Zuñi; September. The spines of the involucre are broadly lanceolate in many of the heads.

Zinnia grandiflora, Nutt. in Trans. Amer. Phil. Soc. (n. ser.) 7, p. 348; Torr. and Gr., Fl. 2, p. 28; Torr. in Emory's rep., p. 144, t. 4. Rio Zuñi and on the Little Colorado; also on the Rio Laguna; August, October.

Lepachys columnaris, Torr. and Gr., Fl. 2, p. 315. On the Zuñi mountain; August.

Heliomeris multiflora, Nutt. in Jour. Acad. Philad. (n. ser.) 1, p. 171; Gray, Pl. Fendl., p. 84. On Zuñi and San Francisco mountain; September, October.

Helianthus lenticularis, Dougl. in Bot. Reg. t. 1265; Torr. and Gray, Fl. 2, p. 319. Little Colorado; October.

H. petiolaris, Nutt. in Journ. Acad. Phil. 2, p. 115; Torr. and Gr. l. c. Rio Laguna; August. Var. foliis lineari-lanceolatis. With the preceding; September 27.

Helianthella uniflora, Torr. and Gr., Fl. 2, p. 334. *Helianthus uniflorus*, Nutt. in Jour. Acad. Phil. 7, p. 37. Bill Williams's river; October.
Achenia obovate-cuneiform, blackish, about 5 lines long and 2 wide, distinctly winged, ciliate; the intermediate squamellæ acute, lacerate, nearly half as long as the persistent slender awns.

Coreopsis cardaminæfolia, Torr. and Gr., Fl. 2, p. 346; Gray, Pl. Wright. 1, p 108. Zuñi, near the Puebla; September.

Thelesperma gracile, Gray, in Kew Jour. Bot. 1, p. 352. *Cosmidium gracile*, Torr. and Gray, Fl. 2, p. 250. Rio Laguna. Achenia strongly verrucose on one side.

Sanvitalia Aberti, Gray, Pl. Fendl., p. 87, and Pl. Wright. 1, p. 111. On the Colorado; September. The achenia are wholly awnless in all the specimens of this collection.

Ximenesia encelioides, Cavan. Ic. 2, p. 60; Torr. and Gr. 2, p. 359; Gray, Pl. Fendl., p. 87. Little Colorado and head of the Rio Laguna; September, October.

Gaillardia aristata, Pursh, Fl. 2, p. 573; Torr. and Gr. Fl. 2, p. 366. On the Little Colorado and Zuñi; September.

Hymenopappus flavescens, Gray, Pl. Fendl., p. 97. On the Zuñi; September.

Bahia oppositifolia, D. C. Prodr. 5, p. 656; Torr. and Gray, Fl. 2, p. 376; Gray, Pl. Fendl., p. 99. *Trichophyllum oppositifolium*, Nutt. Gen. 2, p. 167. On the Zuñi, near the Puebla; September. A rare species, first detected by Mr. Nuttall on the Upper Missouri, and not found afterwards for more than thirty years.

Riddellia tagetina, Nutt. in Trans. Amer. Phil. Soc. (n. ser.) 7, p. 371; Torr. and Gr. Fl. 2, p. 362; Torr. in Emory's report, t. 5. On the Rio Laguna and Rio Zuñi; also along the Little Colorado; August, October.

Actinella Richardsonii, Nutt. l. c.; Torr. and Gray, Fl. 2, p. 381; Gray, Pl. Fendl., p. 101. San Francisco mountain; October. Rays 3-4 lobed. Pappus nerveless.

A. glabra, Nutt. l. c. Torr. and Gr. l. c. Rio Zuñi; September.

Hymenothrix? Wrightii, Gray, Pl. Wright. 2, p. 97. New Mexico; October 21 The particular station of this remarkable species is not recorded. The specimens are scarcely more than a foot high, and the root seems to be annual; in all other respects, except in the broader lobes of the leaves, the plant agrees with Dr. Gray's description (l. c.) The marginal flowers appear somewhat bilabiate, from the union (sometimes nearly to the summit) of the lobes of the corolla.

Achillea millefolium, Linn.; Torr. and Gr. Fl. 2, p. 409. Laguna, &c., October.

Artemesia frigida, Willd.; Torr. and Gr. Fl. 2, p. 424. On the Zuñi mountain; August.

A dracunculoides, Pursh, Fl. 2, p. 521; Torr. and Gr. l. c. Yampai creek; November.

A. Canadensis, Michx. Fl. 2, p. 129; Torr. and Gr. l. c. San Francisco mountain; October.

Senecio filifolius, Nutt. in Trans. Amer. Phil. Soc. (n. ser.) 7, p. 414; Torr. and Gr. Fl. 2, p. 444. On the Rio Zuñi; August, September.

Cirsium undulatum, Spreng.; Torr. and Gray, Fl. 2, p. 456. Zuñi mountain and San Francisco mountain; August, October.

Stephanomeria runcinata, Nutt. l. c.; Torr. and Gray, l. c. New Mexico; October 24.

ASCLEPIADACEÆ.

Asclepias verticillata β? leptophylla: stem slender, with several lines of pubescence, otherwise glabrous, nearly simple; leaves verticillate in fours, narrowly linear, somewhat revolute on the margin, green on both sides; the midrib underneath thick and prominent; peduncles pubescent, shorter than the leaves; umbels few-flowered; lobes of the corolla ovate; hoods ovate on the back, the horn subulate-falciform, exserted; gynostegium on a short stalk; follicles lanceolate, slender, glabrous. Rio Laguna; August. A common New Mexican plant, differing from *A. verticillata* of the Atlantic States in its longer, broader, and far less crowded leaves, fewer-flowered umbels, longer horns, shorter stipe of the gynostegium, &c.

Acerates decumbens, De Caisne in D. C. Prodr. 8, p. 522, Torr. in Emory's report. *Anantherix decumbens*, Nutt. in Trans. Amer. Phil. Soc. (n. ser) 5, p. 202. On the Rio Laguna; October; in fruit.

GENTIANACEÆ.

Gentiana Saponaria, var. *puberula*, Torr. and Gray, in Gray, Bot. N. St. *G. puberula*, Michx. San Francisco mountain; October.

Eustoma Russeliana, G. Don; Griseb. in D. C. Prodr. 9, p. 51. *Lisianthus glaucifolius*, Nutt. in Trans. Amer. Phil. Soc. (n. ser.) 5, p. 197. Valley of the Rio Grande; July.

POLEMONIACEÆ.

Gilia pulchella, Dougl.; Benth. in D. C. Prodr. 9, p. 313. On the San Francisco and Zuñi mountains, New Mexico; August, October.

G. glomeruliflora, Juss.? Benth. l. c.? On the Zuni river, and in other parts of New Mexico. Fl. and fruit, September, October. There are from 3 to 4 ovules in each cell of the ovary.

G. longiflora, G. Don; Benth. l. c. *Cantua longiflora*, Torr. in Amer. Lyc., N. York, 2, p. 221. Ojo de Gallis, head of Rio Laguna; August.

Phlox nana, Nutt. Plant. Gambel. p. 153. Laguna Enematio, and other parts of New Mexico; September. A dwarf species, resembling *P. subulata*, but with larger and broader leaves.

FOUQUIERACEÆ.

Fouquiera splendens, Engelm. in Wisliz. Exped., p. 98; Gray, Pl. Wright. I., p. 76, and II., p. 63. *F. spinosa*, Torr. in Emory's rep., p. 147, t. 8; excl. syn. On Carissa creek, California; December 10; in flower.

A widely diffused species, being found from the San Pedro, in Western Texas, to near the Pacific ocean. Mr. Thurber, of the Mexican boundary survey, found *F. spinosa* near Rayon, in Sonora, and I have what appears to be *F. formosa* collected by Mr. Rich, in Lower California. It strongly resembles *F. splendens*, except in the looser inflorescence, and the spines are an inch long; while in Kunth's description of *F. formosa* they are said to be "brevissimis." In *Philæteria horrida*, Liebm., however, (which is pretty certainly the same species,) the species are described as from half to two-thirds of an inch long. Liebmann, without being aware that his *Philæteria* was a *Fouquiera*, referred the plant to *Polemoniaceæ*, and long before Willdeman considered *F. spinosa* as a species of *Cantua*; so that several botanists have noticed the resemblance of *Fouquiera* to *Polemoniaceæ*.

HYDROLEACEÆ.

Eriodictyon glutinosum, Benth. Bot. Sulph., p. 35; Chois. in D. C. Prodr. 10, p. 183. *Wigandia? Californica*, Hook. Bot. Beech. Suppl. p. 364, t. 88.

Branches and leaves thickly covered with an aromatic varnish, which is very soluble in alcohol. Yampai creek.

SOLANACEÆ.

Solanum Jamesii, Torr. in Ann. Lyc. N. York, 2, p. 227; Dunal in D. C. Prodr. 13, pars 1, p. 40. Also, *S. pinnatisectum*, Dunal, l. c.? Zuñi mountain; August. Not an uncommon species in New Mexico.

Datura metel, Linn.; Dunal, l. c. Common in New Mexico. Fl. and Fr. August, October. *D. meteloides* of Dunal seems to be scarcely distinct. The alternate teeth of the corolla are often indistinct.

SCROPHULARIACEÆ.

Castilleja pallida, Kth.; Benth. in D. C. Prodr. 10, p. 31. On the Zuñi mountains; August.

Orthocarpus luteus, Nutt. Gen. 2, p. 57; Benth. l. c., with the preceding; August.

Cordylanthus ramosus, Nutt. Mss.; Benth. in D. C. Prodr. 10, p. 597. Laguna Enematio; October. Plant about a span high. It is the same as 450 Wright, Coll. 2, 1849.

Maurandia antirrhiniflora, Willd.; Benth. in D. C., Prodr. 10, p. 296. Acoma, August.

Pentstemon Torreyi, Benth. l. c. On the Zuñi mountains; August. A very showy species, with bright red flowers. Not uncommon in New Mexico.

CONVOLVULACEÆ.

Quamoclit hederifolia, Chois. in D. C. Prodr. 9, p. 336? On the Rio Zuñi; September.

The peduncles are only 2-3 flowered; sepals ovate, obtuse, with an abrupt stout awn about its own length.

Convolvulus lobatus, Engelm. and Gray, Pl. Lindh., 1, p. 44, (in adnot.) *C. hastatus*, Nutt., in Trans. Amer. Phil. Soc., (n. ser.,) 5, p. 114. *C. Nuttallii*, Torr., in Emory's report, ed. 1, p. 149. Puebla of Laguna; August.

This species was omitted, by mistake, in the second edition of Emory's report.

BORAGINACEÆ.

Lithospermum hirtum, Lehm.; D. C. Prodr. 10, p. 78. On San Francisco and Zuñi mountains; August, October.

Echinospermum patulum, Lehm.; D. C. Prodr. 10, p. 137. On the Zuñi river; August.

LABIATÆ.

Salvia lanceolata, Willd; Benth., in D. C. Prodr. 12, p. 299. *S. trichostemoides*, Pursh, Fl. 1, p. 19; Torr., in Ann. Lyc., N. York, 2, p. —. Rio Laguna, and river Zuñi; August.

Monarda punctata, Linn.; Benth., in D. C. Prodr. 12, p. 3. *β (?) humilis.* Annual, low; leaves oblong lanceolate; narrowed at the base into a short petiole; bracts oblong, colored, calyx nearly glabrous; the teeth triangular lanceolate, short; corolla pubescent. On the Zuñi; September. Plant scarcely a span high. Perhaps a distinct species.

Mentha Canadensis, Linn.; Benth. l. c. *β. glabrata*, Benth., l. c. *M. borealis*, Michx. Fl. 2, p. 2. Rio Laguna; August.

Cedronella Mexicana, Benth. Lab., p. 502? Zuñi mountains; August.

VERBENACEÆ.

Verbena bracteosa, Michx. Fl. 2, p. 14; Schaur, in D. C. Prodr. 11, p. 545. Rio Zuñi; September.

PLUMBAGINACEÆ.

Statice Californica, Boiss, in D. C. Prodr. 12, p. 643. Zuñi mountains; August. Not sufficiently distinct, I fear, from *S. limonium*.

POLYGONACEÆ.

Polygonum aviculare, Linn.; Gray, Bot. N. States, p. 338. On the Zuñi; August. A large form, with greatly elongated assurgent branches, which are two feet or more in length.

Eriogonum orthocladon (Torr. mss., in D. C. Prodr. ined.:) perenne, albido-tomentosum; foliis omnibus radicalibus ovato-oblongis longe petiolatis pedunculo (vel caule) erecto scapiformi nudo stricto, supra medio 2 (rare 3) fido, ramis erectis indivisis vel rarissime bifidis: involucris campanulato-tubulosis solitariis sessilibus distantibus, apice 5-dentatis; perigoniis glabris, laciniis obovatis æqualibus. On the Zuñi and San Francisco mountains; August, October. Leaves all radical, springing from a short thick caudex, about two inches long, clothed (like the rest of the plant) with a white flocculent pubescence. Scape 2–3 feet high, terete, straight, divided above the middle into two, or rarely three, straight erect branches, both of which are sometimes again forked; involucres somewhat unilateral along the upper part of the branches, many-flowered, somewhat truncate, but distinctly five-toothed at the summit; pedicels exserted, articulated close to the flower, glabrous; bracts filiform, plumose, as long as the pedicels; filaments glabrous; styles twice as long as the ovary, recurved.

This, and the following new species, I communicated to Mr. Bentham, who, I believe, has described them in his monograph of Eriogoneæ, prepared for the forthcoming volume of De Candolle's Prodromus.

E. pharnaceoides, (Torr., l. c.;) annuum, erectum, e basi ramosissimum; ramis pubescentibus filiformibus; foliis lineari-lanceolatis acutis basi attenuatis subtus albo-tomentosis; involucris terminalibus solitariis campanulatis longe-pedunculatis; 5-fidis, laciniis acutis; perigoniis glabris, laciniis exterioribus ovatis obtusissimus basi utrinque subsaccatis, interioribus linearibus longioribus. Western part of New Mexico; October. Also collected by Mr. Wright and Dr. Bigelow, on the Rio Grande. Stem 8–15 inches high, divaricately branching from the base in a verticillate manner; the branches very slender; leaves 6–10 lines long, 3 to

8 at each joint, verticillate, dull green and pubescent above, clothed with a white wool underneath; involucres about two lines long, many-flowered, woolly, five-cleft below the middle; the segments ovate lanceolate, and very acute; pedicels exserted, jointed close to the flower, glabrous; bracteoles filiform, plumose; exterior segments of the brownish-red perigonium concave, erect, with a shallow saccate projection on each side of the base; interior segments one-third as broad as the outer one, emarginate, ovary glabrous, acuminate, crowned with three very short styles; filaments glabrous; achenium triquetrous; seed ovate, acuminate; cotyledons flat; radicle elongated, ascending. A very distinct species, but related to *E. Abertianum*.

E. alatum, (Torr., l. c.;) perenne; caule erecto subflexuoso folioso, ramis alternis erectis paniculatis; foliis spathulatis hirsutis; pedunculis terminalibus ternis; involucris solitariis campanulatis 5-fidis; perigoniis glabris, laciniis æqualibus; acheniis trialatis. On the Zuñi river; September. Root stout and blackish, descending to a great depth; stem 1–3 feet high, arising from a short thick caudex, which is clothed with the remains of leaves. Radical leaves 2–4 inches long, and 3–5 lines wide, almost villous, with long hairs, mostly obtuse; stem leaves much smaller, and gradually diminishing in size upward, all of them erect. Branches solitary and distant, subdivided in a trichotomous manner, each division bearing a single involucre, which is about 2¼ lines long, and pubescent. Pedicels glabrous, a little exserted, jointed close to the flower; perigonium not enlarging after flowering; the segments lanceolate; filaments glabrous; ovary oblong, triquetrous, longer than the styles; achenium nearly four lines long, with three very conspicuous membranaceous wings; seed ovate, triangular; embryo straight.

This remarkable species was first detected by Colonel Frémont in upland prairies, at the sources of the Plata, in 1843, and again in 1845 in "Bahia Salada," in the Rocky mountains. Lieutenant Abert found it on the Raton mountains in 1846.

E. Jamesii; Benth. in D. C. Prodr. 14, (ined.) *E. sericeum*, Torr. in Ann. Lyc. N. York, 2, p. 241, excl. syn. Head of the Rio Laguna, and on the Zuñi mountains; August, September. This is a common species in New Mexico. No. 617 Wright, col. 2, is the same.

E. cernuum, Nutt. Pl. Gambel., in Jour. Acad. Phil., (ser. 2,) 1, p. 162. On the Zuñi river; September. A small annual species. Captain Stansbury found it on Green river, west of the Rocky mountains; Colonel ——— in the South Park of the same mountains; and Lieut. Simpson on the Sierra de Tenu-che.

E. effusum, Nutt. l. c.; *β? leptophyllum*, suffrutescens, multicaulis; ramis erectis foliosis albotomentosis demum glabrescentibus; foliis angusto-linearibus subglabris; pedunculis composite-trichotomis; involucris campanulato-tubulosis pauci-(sub 6)-floris truncatis obscure quinquedentatis; perigoniis glabris, laciniis obovatis æqualibus. Rio Zuñi; September. About ten inches high; stems numerous from a ligneous base, slender, leafy to the peduncles; leaves about an inch long, and scarcely a line wide; in the dry state revolute on the margin, nearly glabrous. Peduncles many times trichotomous, forming a compound fastigiate cyme; the bracts somewhat subulate. Involucre about two lines long, and less than a line in breadth. Flowers exserted, erect, larger than the involucre. Bracteoles filiform, glandularly pubescent. Filaments pubescent. Styles longer than the ovary. Achenium triquetrous. This plant differs from *E. effusum* in the leafy and more slender stems; much narrower leaves, and nearly toothless involucres, as well as in some less important characters; but it may be only a variety of that species.

NYCTAGINACEÆ.

Abronia cycloptera, Gray, in Sill. Journ. (n. ser.) 15, p. —. *A. (Tripterocalyx) micrantha*, Torr. in Frém. 1st rep., p. 96, and in Emory's rep., p. 149; Choisy, in D. C. Prodr. 13, p. 436. Near the puebla of Zuñi; September.

A. mellifera, Dougl. mss. in Hook. Bot. Mag. t. 2879; Choisy, l. c. Carissa creek, California; December.

Oxybaphus angustifolius, Sweet, Hort. Brit. p. 567; Choisy, in D. C. Prodr. 13, p. 433. *Allionia linearis*, Pursh, Fl. 2, p. 728. On the Zuñi, and near the puebla of Laguna; August, September.

Quamoclidion multiflorum, Torr.; Gray, l. c. *Oxybaphus multiflorus*, Torr. in Ann. Lyc. N. York, 2, p. 237. *Nyctaginea? Torreyana*, Choisy, l. c. Rio Laguna; August.

SALSOLACEÆ.

Cycloloma platyphyllum, Moq. Chenop., p. 18, and in D. C., Prodr. 13, (pars post.) p. 60. *Salsola platyphilla*, Fl. 1, p 174. *Kochia dentata*, Willd. Enum. 1, p. 28, t. 28. Near the puebla of Zuñi; September. Much branched from the root, and widely spreading.

Sarcobatus vermicularis, Torr. in Emory's rep., p. 150. *S. Maximiliani*, Nees. *Frémontia vermicularis*, Torr. in Frémont's 1st and 2d reports. *Batis vermicularis*, Hook. Ojo del Harra, on the Zuni; August.

Obione canescens, Moq. Chenop., p. 74; and in D. C. Prodr. 13, (pars post.) p. 112. *Atriplex canescens*, Pursh, Fl. 2, p. 370. *Pterochiton occidentale*, Torr. and Frém. in Frém. 2d rep., p. 318. *P. canescens*, Nutt. in Jour. Acad. Philad. (n. ser.) 1, p. 184. *Obione occidentale*, Moq. l. c. On the Little Colorado of New Mexico, and on the Colorado of California; October, November; in fruit.

O. lentiformis: caule suffruticoso ramosissimo inermo subtereti; ramis paniculatis; foliis orbiculari-deltoideis, vel subcordatis, sinuato-paucidentatis vel subintegris, petiolatis, lepidoto-farinosis, cinereo-incanis; fructibus sessilibus numerosissimus ad ramulos congestis; bracteis orbicularis integris vel remote repando denticulatis basi coalitis; disco nudo. On the Colorado of California; November; in fruit. Also found by Major Emory on the Gila, near its mouth.

This species is remarkable for its very abundant, small, lentiform fruits (about two lines in diameter,) which completely cover the paniculate spreading branches. The leaves are from half an inch to nearly an inch long.

Corispermum hyssopifolium, Linn.; Pursh, Fl. 1, p. 8; Moq. in D. C. Prodr. 13, (pars post.) p. 140. *C. hyssopifolium*, *β. Americanum*, Nutt. Gen. 1, p. 4. On the Zuñi; September.

Acanthochiton: gen. nov. Flores dioici, heteromorphi. Mas. Perigonium ebracteatum? Vel 1-2 bracteatum, 5-sepalum; sepalis æqualibus erectis. Stamina 5; filamenta filiformia; antheræ oblongæ biloculares. Fem. Perigonium 1-2-phyllum vel nullum. Stamina 0. Ovarium ovatum compressiusculum; styli 2-4, filformes intus stigmatosi. Utriculus ovato-ellipticus, membranaceus, subcompressus, apterus circumscisse dehiscens. Semen verticale, compressum; albumen centrale, farinaceum. Embryo annularis; radicula infera. Herba annua glabriuscula. Folia lanceolato, integra. Flores axillares, sessiles; masculi glomerati; fœminei glomerato-spicati, foliorum bractealium cordato-falciformium spinescentium basi reconditi.

A. Wrightii. Near the puebla of Zuñi, and on the Little Colorado; September. Plant about a foot high; the female much more branching than the male; nearly glabrous. Leaves narrowly lanceolate, a little undulate, or sometimes crenulate, on the margin; acute, and usually tipped with short mucro, tapering at the base into a petiole; penninerved, the nerves prominent underneath. Staminate flowers in small roundish clusters in the axils of all the leaves, from the middle of the stem to the summit, giving the appearance of a leafy interrupted spike. Perianth sometimes apparently naked at the base, but often with one or two bractioles; leaflets lanceolate, very acute. Stamens shorter than the perianth. Flowers in the pistillate plant also in numerous axillary clusters, or rather short spikes. Bracts broadly cordate-falcate, coriaceous, squarrose, reticulately veined, crenulate on the margin, tipped with a sharp and somewhat rigid point, each enclosing and concealing a single flower. Perianth consisting of one or two lanceolate or spatulate scales—sometimes wanting. No traces of stamens. Ovary glabrous and even, with a single ovule; styles usually three or four, seldom two. Utricle opening transversely a little above the middle. Seed dark brown. Embryo slender, forming a nearly complete circle.

This plant was first detected in Western Texas, in 1849, by Mr. Wright; it has much the habit of *Agriophyllum*, but differs in being dioecious, and in the even, circumscissile utricle. It is an anomalous *Chenopodiacea*, and might, perhaps, be referred to *Amaranthaceæ*.

SAURURACEÆ.

Anemiopsis Californica, Nutt. in Ann. Nat. Hist., 1, p. 136; Hook. and Arn. Bot. Beech., p. 390, t. 92. Valley of the Rio Grande, a few miles below Doña Ana; July.

EUPHORBIACEÆ.

Hendecandra Texensis, Klotzch, in Erich. Arch. (1841) 1, p. 252. *H. multiflora*, Torr. in Frém. 1st report. *Croton muricatum*, Nutt. in Trans. Amer. Phil. Soc. (n. ser.) 5, p. 173. Ojo Pescadi, head of the Rio Zuñi; August.

Euphorbia maculata, Linn.; Gray, Bot. N. St., p. 406. Rio Laguna; August.

E. herniarioides, Nutt. l. c.; Engelm. and Gray, Pl. Lindh. 1, p 52. Little Colorado; October.

JUGLANDACEÆ.

Juglans rupestris, Engelm. (mss.): foliis numerosis, (17-23,) lanceolatis apice attenuatis, basi obliquis inequalibus subfalcatis margine integris vel remote denticulatis petiolisque minute pubescentibus; fructibus globosis compressiusculis glanduloso-pubescentibus; nuce longitudinaliter sulcato; putamine creberrimo. New Mexico, in various place, commonly in stony places. Also found in western Texas.

This species is usually a shrub 8–12 feet high, but, in favorable situations, sometimes rising to thirty feet. Leaves a foot or more long; leaflets 2–3 inches long, and 6 to 8 lines wide, often perfectly entire; fruit about the size of a musket-ball, usually depressed, globose, the pulp thin; nut about 6 lines in diameter, rather deeply sulcate, the sulcæ simple, or forked; shell remarkably thick, so that the kernel is scarcely larger than a pea.

I first received specimens of this plant from Dr. J. M. Bigelow, when he was attached, as botanist, to the Mexican Boundary Commission, in 1850. He thought it was probably a new species, and wished me, in case it should prove to be undescribed, to name it *J. Whippleana*, in compliment to Lieutenant Whipple, who was also a member of the Boundary Commission. Accordingly, I read an account of it, under this name, before the American Scientific Association, in August, 1851; but the description was not published. Afterwards I was informed that Dr. Engelmann had obtained the plant before me, and had already named it *J. rupestris*, which name is therefore adopted. Last year I received from Dr. Woodhouse, and also from Dr. Bigelow, specimens of what I at first took for a second new species of *Juglans*, very near *J. rupestris*, but with broader and more closely serrated leaflets, with fruit three times larger, as well as less strongly sulcate, and the shell is proportionably thinner. It was figured and engraved before I began to doubt whether it was a distinct species. For the present it may be noticed as a variety, thus:

β. major; foliis oblong-lanceolatis; fructibus subovato-globosis apiculatis leviter sulcatis.

Dr. Woodhouse found the plant in western New Mexico, and Dr. Bigelow collected it at the Copper Mines.

SALICACEÆ.

Salix longifolia, Muhl.; Carey in Gray's Bot. N. St., p. 429. Yampai creek.

Two other species of *Salix*, both apparently distinct from any in the Atlantic States, occur in the collection, but they cannot be certainly determined for want of the flowers.

Populus tremuloides, Michx. Fl. 2, p. 143; Michx. f. Sylv. 1, p. 125, t. 99, f. c. San Francisco mountain.

P. monilifera, Ait.; Michx. f. Sylv. 1, p. 116, t. 96, f. 2. On the Yampai and Little Colorado.

P. angustifolia, James; Torr. in Ann. Lyc. N. York, 2, p. 249. On the Zuñi. The leaves are broader than in the original specimens collected by Dr. James, in Long's Expedition, being rhombic ovate.

PLATANACEÆ.

Platanus Mexicanus, Moric. Pl. Var. d'Amer., t. 26. *P. Californicus*, Benth. Bot. Sulph., p. 54. Santa Isabella, California; December; in fruit The balls of fruit are nearly an inch in diameter, and there are six on one stalk, in a long raceme.

CUPULIFERÆ.

Quercus Gambelii, Nutt. Pl. Gamb. in Jour. Acad. Phil. (n. ser.) 1, p. 179. San Francisco mountain; with mature fruit. A variety with the lobes of the leaves more acute, was collected on the Zuñi. Mr. Nuttall remarks that this species approaches *Q. obtusiloba* in the leaf; but I think it more resembles *Q. alba*. It is near *Q. Douglasii*, Hook, and *Q. Hindsii*, Benth.

Q. oxyadenia: foliis ovatis subcordatis brevipetiolatis subcoriaceis, repando-dentatis, dentibus mucronatis supra-pallidæ viridibus glabrescentibus subtus ferrugineo-pubescentibus cupula hemispherica, squamis arcte appressis; glande oblongo conica elongata acutissima cupulam 4–5-plo superante. Santo Isabelle, California. Leaves 1½–2 inches long, probably evergreen, pale green and rather dull above, clothed with a ferruginous pubescence underneath; the veins pale and very prominent. Scales of the cup ovate-lanceolate, rather obtuse, very closely appressed, glabrous, and of a chestnut color. Glands about an inch and a half long, tapering to a long sharp point. Allied to *Q. agrifolia*, but differing in the form of the acorns, as well as in the size and outline of the leaves. Nuttall, however, has represented his *Q. agrifolia* (in North Amer. Sylv., pl. 2) with long-pointed acorns.

Q. agrifolia, Nees; Hook. Icon. 3, t. 377; Hook. and Arn. Bot. Beech., p. 391. Yampai Creek; October, (ripe fruit.) A dwarf, much branched species, seldom attaining a greater height than eight feet. Our specimens agree exactly with the figure of Hooker, above quoted.

Q. oblongifolia: foliis coriaceis (perennantibus) oblongis utrinque obtusis integerrimis glabris apice muticis; fructibus sessilibus solitariis; cupula hemispherica turbinata, squamis ovatis convexis; glande ovata cupulam triplo superante obtusa cum umbone parvo conico.

Western New Mexico. This very neat species of live-oak I am obliged to describe as a new species, as I cannot find that it has been hitherto noticed.

URTICACEÆ.

Humulus Lupulus, Linn.; Gray, Bot. of N. St., p. 435. *H. Americanus*, Nutt. in Jour. Acad. Phil. (n. ser.) 1, p. 181. On the Rio San Francisco of Western New Mexico. I cannot find sufficient characters for distinguishing the N. American from the European hop.

CONIFERÆ.

Pinus edulis, Engelm. in Wisliz. Mem. N. Mex., p. 88. Head of the Rio Laguna, New Mexico, and Carissa creek, California; September, December, (with mature cones.) The seeds of this species are edible, and much esteemed by the Indians. It is related to the singular *P. monophylla*, Torr., described in Frémont's 1st report.

P. macrophylla, Engelm. l. c.? On the Zuñi mountains; August. Differs from the description of Dr. Engelmann in the leaves being constantly in threes, and shorter (about 7½ inches long,) and in the smaller cones.

Pinus (Abies) Douglasii, Sabine Mss. in Hook. Fl. Bor. Am., 2, p. 162, t. 183? San Francisco mountains, 7,000 feet above the sea. Our specimens are without fruit, and we therefore cannot be certain of the species, but the foliage agrees exactly with Douglas's plant.

Juniperus.—Three species of this genus occur in the collection. 1. A large tree, with a trunk sometimes two feet in diameter, and bark more than four inches thick. The leaves of the ultimate branches are very minute, rhombic ovate and acute, convex, closely imbricated, with a conspicuous resiniferous gland on the back. The fruit is spherical, as large as a rifle-ball, covered with a blue bloom, minutely and sparingly tuberculate, and usually contains three seeds. It grows in the western part of New Mexico. 2. A tree attaining the height of thirty feet, with a smooth bark; differing from the preceding in its stouter branchlets, broadly ovate, more obtuse, and much more convex leaves. The fruit (also covered with a bloom) is a little smaller, inclining to ovate, less tuberculous, and contains but a single extremely thick-shelled seed. It was found along the Yampai creek and on the Little Colorado. 3. A large shrub, with ovate rather acute obtusely carinate leaves. The berries are only a little larger than in *J. Virginiana,* the pulp is copious and sweetish, and the seed is usually solitary. It grows on the Zuñi river. The first species may be *J. occidentalis,* Hook.; the second is, I suspect, *J. tetragona,* Schlecht.; and the third is probably new.

Ephedra antisiphilitica, Berland.; Endl. Syn. Conif., p. 263. On the Zuñi and Yampai rivers. The specimen of Berlandier was collected on the Rio Grande, near Laredo, from whence we also possess specimens that agree with the description of C. A. Meyer, (quoted by Endlicher, l. c.) and are identical with Dr. Woodhouse's plant. It is a common species in New Mexico, and is everywhere used by the natives as a remedy for gonorrhœa, a disease that is too common in New Mexico.

NOTE.

The botanical collections placed in my hands for examination by Dr. Woodhouse, consisted of three portions. The first were made chiefly between the Neosho and Arkansas rivers, and on the North Fork of the Canadian. The flora of this region embraces a great many plants of the States east of the Mississippi, and although a full catalogue of the species was prepared, it was not considered as of sufficient value to publish it. Some of the more interesting plants found between the Neosho and the Arkansas are *Hypericum Drummondi*, *Talinum aurantiacum*, *Œnothera rhombipetala*, *Discopleura Nuttallii*, *Eryngium Leavenworthii*, *Heliotropium tenellum*, Torr., (*Lithospermum tenellum*, Nutt.,) and *Frœlichia Floridana*.

Of those found on the North Fork of the Canadian, the following are the more important: *Cleomella angustifolia*, *Dithyrœa Wislizeni*, *Hosackia Purshiana*, *Rosa foliolosa*, *Œnothera Jamesii*, *Mentzelia ornata*, *Eryngium diffusum*, *Heterotheca scabra*, *Cosmidium filifolium*, *Coreopsis aristosa*, *Rudbeckia alismæfolia*, *Solidago Missouriensis* and *petiolaris*, *Amphiachyris dracunculoides*, *Vernonia Arkansana*, *Echinacea angustifolia*, *Centaurea Americana*, *Lobelia Texensis*, *Gilia longiflora*, *Euploca convolvulacea*, *Sabbatea campestris*, *Ipomæa leptophylla*, *Asclepias speciosa*, *Eustenia albida*, *Hendecandra Texensis*, *Euphorbia arenaria*, *Eriogonium annuum* and *longifolium*, and *Yucca angustifolia*.

The Texan collection was much richer, and a catalogue of it was also prepared, but omitted at the suggestion of Dr. Woodhouse, as Mr. Wright, and the botanists of the Mexican Boundary Commission, had so recently explored the route passed over by Captain Sitgreaves. Most of the plants in this part of the collection were gathered between San Antonio and El Paso del Norte. There are very few of them that are not included in Dr. Gray's Plantæ Wrightianæ, as far as that work is published. Beyond *Compositæ*, the following are the principal: *Specularia ovata*, (*Dysmicodon ovatum*, Nutt.,) *Campylocera leptocarpa*, Nutt., *Chilopsis linearis*, *Stenandrium barbatum*, Gray, *Calophanes linearis*, *Leucophyllum Texanum*, *Pentstemon dasyphyllum*, *Cobaea* and *Grahami*, *Solanum Texanum*, *Erythræa Beyrichii*, *Heliotrophum inundatum*, and *Greggi*, Torr. mss., *Salvia formosa*, Benth., *Asclepias longicornis*, *Tetraclea Wrightii*, Gray, *Acleisanthes longiflora*, Gray, *Quercus Emoryi*, *Juglans rupestris*, *β?* *Greenia Arkansana*, Nutt., *Cheilanthes gracilis*, and *Selaginella convoluta*, Spring.

The third collection was made between El Paso and California, in the latter part of the summer and autumn of 1851. Most of the plants were found on the route from Laguna to the Puebla of Zuñi, a tributary of the Colorado of the West. The Zuñi mountains (Sierra de Zuñi) rise to the height of 7,545 feet. When the party reached California, it was so late in the season that very few plants were in a proper state for the herbarium, and the collection is accordingly meagre in specimens from the western extremity of the route. It is hoped that the list here given will at least contribute to our knowledge of the botanical geography of our far western territories.

JOHN TORREY.

New York, 1853:

EXPLANATION OF THE PLATES.*

Plate 1. Stanleya integrifolia.

Fig 1, a flower magnified; fig. 2, a silique, equally magnified.

Plate 2. Vernonia Arkansana.

Fig. 1, a flower; fig. 2, the style; fig. 3, an achenium, with its pappus—all magnified.

Plate 3. Bahia integrifolia.

Fig. 1, a ray-flower; fig. 2, a disk-flower; fig. 3, style of the same; fig. 4, achenium—all magnified.

Plate 4. Linosyris pulchella.

Fig. 1, a single flower, magnified; fig. 2, the style, more magnified.

Plate 5. Tessaria borealis.

Fig. 1. A female flower; fig. 2, a central hermaphrodite flower—both moderately magnified; fig. 3, pappus of the female flower, more magnified; fig. 4, pappus of the hermaphrodite, equally enlarged.

Plate 6. Hymenothrix Wrightii.

Fig. 1, a marginal flower; fig. 2, a disk-flower; fig. 3, style of the latter; fig. 4, pappus; fig. 5, an achenium—all more or less magnified.

Plate 7. Gilia longiflora.

Fig. 1, a flower laid open, but little magnified; fig. 2, the calyx, more enlarged; fig. 3, a stamen; fig. 4. part of the style and the stigma, with the lobes connivent; fig. 5, diverging lobes of the style after anthesis; fig. 6, a capsule; fig. 7, transverse section of the same—all magnified.

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* Plates Nos. 1 and 12 represent two plants not contained in the New Mexican collection, but they are natives of Texas. They were prepared for another government report, which was not published.

Plate 8. Eriogonum alatum.

Fig. 1, involucre; fig. 2, a single flower, with its bract; fig. 3, the pistil; fig. 4, achenium; fig. 5, transverse section of the same; fig. 6, the seed; fig. 7, the embryo—all magnified.

Plate 9. Eriogonum orthocladon.

Fig. 1, an involucre; fig. 2, perigonium and bracteole; fig. 3, achenium—all magnified.

Plate 10. Eriogonum effusum β? leptophyllum.

Fig. 1, involucre and flowers; fig. 2, a separate flower; fig. 3, a stamen; fig. 4, the pistil—all magnified.

Plate 11. Eriogonum pharnaceoides.

Fig. 1, an involucre; fig. 2, a flower, with its bracteole; fig. 3, an exterior sepal; fig. 4, an interior sepal; fig. 5, an achenium; fig. 6, the embryo—all magnified.

Plate 12. Eriogonum umbellatum.

Fig. 1, involucre and flowers, moderately enlarged; fig. 2, a single flower, without its pedicel—more magnified; fig. 3, an exterior sepal; fig. 4, an interior sepal; fig. 5, a stamen; fig. 6, an achenium; fig. 7, transverse section of the same; fig. 8, the embryo—all magnified.

Plate 13. Acanthochiton Wrightii.

The principal figure on the right hand is the male plant, and that on the left the female.

Fig. 1, a mature utricle, with its persistent styles; fig. 2, the seed; fig. 4, transverse section of the same; fig. 3, the embryo; fig. 5, a male flower; fig. 6, a sepal; fig. 7, a stamen—all magnified.

Plate 14. Obione lentiformis.

Fig. 1, the fructiferous bracts, magnified; fig. 2, the achenium, more magnified.

Plate 15. Juglans rupestris.

Fig. 1, the fruit; fig. 2, a nut; fig. 3, the same, cut transversely—all of the natural size.

Plate 16. Juglans rupestris, β?

Fig. 1, the fruit; fig. 2, a nut—both of the natural size.

Plate 17. QUERCUS OXYADENIA.

A branch of the natural size.

Plate 18. QUERCUS GAMBELII.

A branch of the natural size.

Plate 19. QUERCUS OBLONGIFOLIA.

A branch of the natural size.

Plate 20. PINUS EDULIS.

Fig. 1, a pair of leaves; fig. 2, a seed—both of the natural size.

MEDICAL REPORT.

BY S. W. WOODHOUSE, M.D.

MEDICAL REPORT.

BY S. W. WOODHOUSE, M. D.

ACADEMY OF NATURAL SCIENCES,
Philadelphia, January 22, 1853.

SIR: I have the honor to lay before you a report of the medical and surgical cases I was called upon to treat while attached to your command as surgeon and naturalist, between Santa Fé, New Mexico, and San Diego, California.

I have introduced one case in particular, in which I was unfortunately the sufferer. I refer to the bite of the rattlesnake, (*Crotalus Lecontii*, Hallowell,) with its treatment, which may be of some service to the profession, especially to those connected with the army.

I have introduced in this report only such cases as required active treatment, the patients not being fit for duty. I was frequently called upon by the men to prescribe; but the less important cases I have omitted.

The general health of the party while on the march was excellent, considering the privations and hardships to which they were exposed. On leaving Santa Fé, until our arrival at Zuñi, there was but little disease, with the exception of a few cases of venereal.

On Wednesday morning, the 17th of September, 1851, while Lieut. Parke and I were walking out to procure some specimens of birds, when about two miles from Zuñi, in passing along an Indian trail, I came within a few inches of treading upon a rattlesnake, which immediately coiled himself up and prepared to strike. Jumping back, I drew my ramrod, and with it struck him over the back, with sufficient force to break it. Being a fine specimen, I wished to preserve it without further injury, when, placing my gun on his head, and seizing it, as I supposed, immediately back of the head, picked him up; but, unfortunately, I had too long a hold, when he threw round his head and buried his fang in the side of the index finger of my left hand, about the middle of the first phalanx. The pain was intense, but momentarily producing a sickening sensation. I immediately commenced sucking the wound; at the same time I got Lieut. P. to apply a ligature round the finger, to prevent the too rapid absorption of the poison. Scarifying the finger freely, I continued sucking the wound until I returned to camp. I sent a man, who was with us at the time, immediately back to the pueblo, to bring me some *aqua ammoniæ fortis*. He met me about three-fourths of a mile from the pueblo. I immediately applied it freely to the wound, when I was met by Mr. Kern, who wished me to try the western remedy; that is to say, to get drunk. This remedy I had often heard of, and, determined to try its efficacy, I commenced drinking whiskey. By the time I reached the pueblo I had drank about half a pint. During all this time I continued sucking the wound; then taking some ammonia internally, I scarified the finger, holding it in a basin of warm water, which allowed it to bleed freely. Already the glands in the axilla were getting sore and painful. I commenced drinking brandy; at the same time held my finger in a cup of ammonia. It took a quart of fourth-proof brandy, besides the whiskey, to produce intoxication, which only lasted some four or five hours. During this state I vomited freely. Soon after coming to my senses, I removed the ligature, and applied a large poultice of flaxseed-meal. I repeated the ammonia internally, and took some *mass hydrg.* and *ext. collocynth comp.* as a cathartic. In the evening the glands in the axilla were quite painful; so was also the finger; took *pulv. doveri*, grs. x.

Thursday, 18*th.*—Passed a restless night, without sleep, although having taken during the night *pulv. opii. grs. iv.* This morning the pain in the finger is intense; a well-marked line of inflammation extends along the arm to the axilla; had the entire arm and hand painted with tincture of iodine, and the poultice renewed; commenced taking *potassii iodidi* as an alterative. The pills not having operated, took *pulv. Seidlitz*, which had the desired effect. Diet, boiled rice. Several times, on my attempting to walk a few yards, I would be seized immediately with nausea and vomiting. This continued for several days. Took at bed-time *pulv. doveri*, grs. x. The arm and hand I have resting on an inclined plane, which affords considerable relief.

Friday, 19*th.*—I rested pretty well last night; but this morning my arm, hand, and the glands in the axilla, are much swollen and very painful. Repeated the tincture of iodine. Diet, boiled farina. Took, on retiring, *pulv. doveri*, grs. x.

Saturday, 20*th.*—Passed a tolerable night, but my back is getting very sore, as the blankets on the stone floor make rather a hard bed. This morning the pain is very great, and the swelling extends down the left side to the hips; renewed the tincture of iodine; removed the skin from off the finger; it discharged freely a watery, sanguineous fluid, without smell; the nail is becoming loose. The broad red line following the course of the lymphatics is now filled with yellow serum. The point where the fang entered, for the space of three-eighths of an inch, is of a dark-brown color. This evening at bed-time took *mass hydrg.*, grs. v; *pulv. doveri*, grs. x. Continued *potassii iodidi*. Diet the same.

Saturday, 21*st.*—Passed a restless night, the hand being filled with serum, and much troubled with cholic; took *magnesia calci* and *spts. mentha piperita*. My bowels not being opened, took *pulv Seidlitz*, and was relieved.

Monday, 22*d.*—Passed a comfortable night, the swelling having left my side and arm; but little remains in the hand. Continued *potassii iodidi*. Low diet. I can now walk a few yards without nausea, and am able to sit up the most of the day. Diet, mutton broth and farina.

Tuesday, 23*d.*—I awoke this morning feeling much improved, the swelling and pain having left, with the exception of the finger, the first and second joints of which do not present a healthy appearance, the palmar surface having much the appearance of gangreen; but the discharge is thin and watery. I can detect no smell. The granulations do not present a healthy appearance; they are rough, and many of them look as if they were sprinkled with yellow ochre. The nail is quite loose. Continued *potassii iodidi*. Diet, mutton broth, with a little of the meat.

Wednesday, 24th.—This day we commenced our march; after going six miles, encamped. I placed my hand in a sling, and it was with the greatest difficulty I could manage the mule with one hand, being rather weak, and the animal rather obstinate. The sun was very hot; this, with the jolting, caused me to suffer considerable pain.

I removed the nail; from this time the finger gradually improved. Continued the poultice until the last of October, when I applied *cerate simplex*. In the mean time there was a large slough, which gradually came away and left the last phalanx exposed in two places. The granulations required occasionally the application of the nitrate of silver. Continued with my hand in a sling until about the middle of November.

A new nail commenced growing, and a small sinus remained in the end of the finger; upon the introduction of a probe into which, the bone could be felt quite rough. A discharge from this kept up until about the 7th of February, when I removed the exfoliation of the end of the last phalanx, showing evidently that the fang had entered the periosteum. Soon after this the sinus closed, leaving it in a deformed state, anchylosis having taken place in the first joint. The circulation is very imperfect, one of the arteries being destroyed, which renders it very susceptible to cold. The insertion of the flexor muscle is also destroyed.

During the time we were at Zuñi, and on our march, up to the 9th of October, there was but little complaining of any kind, excepting an occasional diarrhœa.

From the 9th of October to the first of November, whilst we were on or about the San Francisco mountain, quite a number of cases of intermittent and bilious remittent fevers occurred; this, however, lasted but a short time, and yielded readily to treatment.

On Sunday, October 12, Enematio Valdez was struck in the head by a stone thrown by another Mexican during a dispute. When I was called, he had all the symptoms of concussion of the brain; for which I treated him. On the following day he was quite rational, and on the succeeding was walking about camp apparently well and in good spirits. On the morning of the 15th, we moved camp about twelve miles; he rode a mule; the sun was quite warm; made no complaint after getting into camp.

On the morning of the 16th I was called to see him; the thermometer then stood at 20°; found him perfectly insensible and cold, having symptoms of compression of the brain. After rolling him in blankets and placing him near the fire, I bled him and applied the necessary remedies, which appeared to relieve him immediately. On the 17th he was apparently much better, and answered the questions put to him, but complained much of his head. On the following day he was again insensible and sinking fast, which he continued to do until the morning of the 20th, when he died.

Having the use of but one hand, I was unable to make a post mortem examination. The great extremes of heat and cold at this time, I think, hastened his death.

On Monday, November 3d, about noon, our guide, Mr. Leroux, was severely wounded by the Cojninos Indians. Two of the arrows, armed with stone heads, took effect; one, striking him on the left side of the head, behind the ear, after cutting a groove in the occipital and temporal bone, broke in numerous pieces, all of which I removed without difficulty. The wound healed without any bad effects. The other entered the forearm, near the wrist-joint; the head was firmly imbedded in the radius. This I attempted to remove several times, by seizing it with my forceps, which slipped at each effort, bringing away with them a small piece of the stone. I then cut down upon the stone and exposed it; placing my forceps under one corner, made use of them as a lever, using my thumb as the fulcrum. I succeeded in moving it slightly, in doing which I bent my forceps, and raised a large blood-blister on my thumb. Having to use so much force, it was necessary to have recourse to a pair of tooth-forceps, and apply considerable force, before I was able to remove it, so firmly was it imbedded in the bone, which was not even splintered. This wound was very slow and sluggish in healing; the pus following the course of the tendons, formed sinuses, which caused him to suffer considerable pain.

About the 14th of November, quite a number of the party were seized with influenza. This I also observed among the Indians.

On the 17th of November we were attacked by the Yumas Indians. One of the soldiers, by the name of Jones, was brought into camp in a dying condition, having received an arrow-wound in the elbow-joint, which I suppose sickened him; then rushing upon him, and using their clubs freely about his head, they left him for dead. When brought into camp, he was insensible. I examined his wounds, but could not detect a fracture or depression of the scull. The scalp was torn loose in every direction, the face greatly swollen; breathing sterterous, almost pulseless. After reaction had taken place, I bled him. His pulse rose, and breathing became more easy. He, however, remained insensible until the time of his death, which took place on the following morning about 8 o'clock. Two of the other soldiers were slightly wounded at the same time.

The most of the party, from the 20th to the last of the month, were afflicted with diarrhœa, which was caused by the entire use of fresh mule-meat, without condiments of any kind; but few of the cases, however, required treatment.

On our arrival at the mouth of the Gila river we were supplied with good provisions, together with antiscorbutics, which prevented scurvy, with which several of the party were already threatened.

I am, sir, with much respect, your obedient servant,

S. W. WOODHOUSE, M. D.,
Surgeon and Naturalist to the Expedition.

Brevet Captain L. Sitgreaves,
U. S. Topographical Engineers, Washington.

Disease.	Result.	
	Cured.	Died.
Intermittent fever	11	
Bilious remittent fever	7	
Dysentery	6	
Diarrhœa	17	
Cholera morbus	1	
Cholic	1	
Intercostal rheumatism	1	
Catarrh	3	
Anasarca	1	
Parotitis	1	
Erysipelas	1	
Furunculus	1	
Ophthalmia	2	
Rattlesnake bite	1	
Gonorrhœa	3	
Syphilis	5	
Secondary syphilis	2	
Orchitis	1	
Compression of the brain		1
Arrow wound of head and forearm	1	
Arrow wound of thigh near the knee-joint	1	
Arrow wound of hand	1	
Arrow wound of arm and shoulder	1	
Arrow wound of elbow-joint and concussion of the brain, with laceration of the scalp		1
Total	69	2

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MAP.

Reconnoissance of the Zuñi, Little Colorado, and Colorado rivers, made in 1851, under the direction of Col. J. J. Abert, chief of corps of Topographical Engineers, by Captain L. Sitgreaves, T. E., assisted by Lieut. J. G. Parke, T. E., and Mr. R. H. Kern. Drawn by R. H. Kern.

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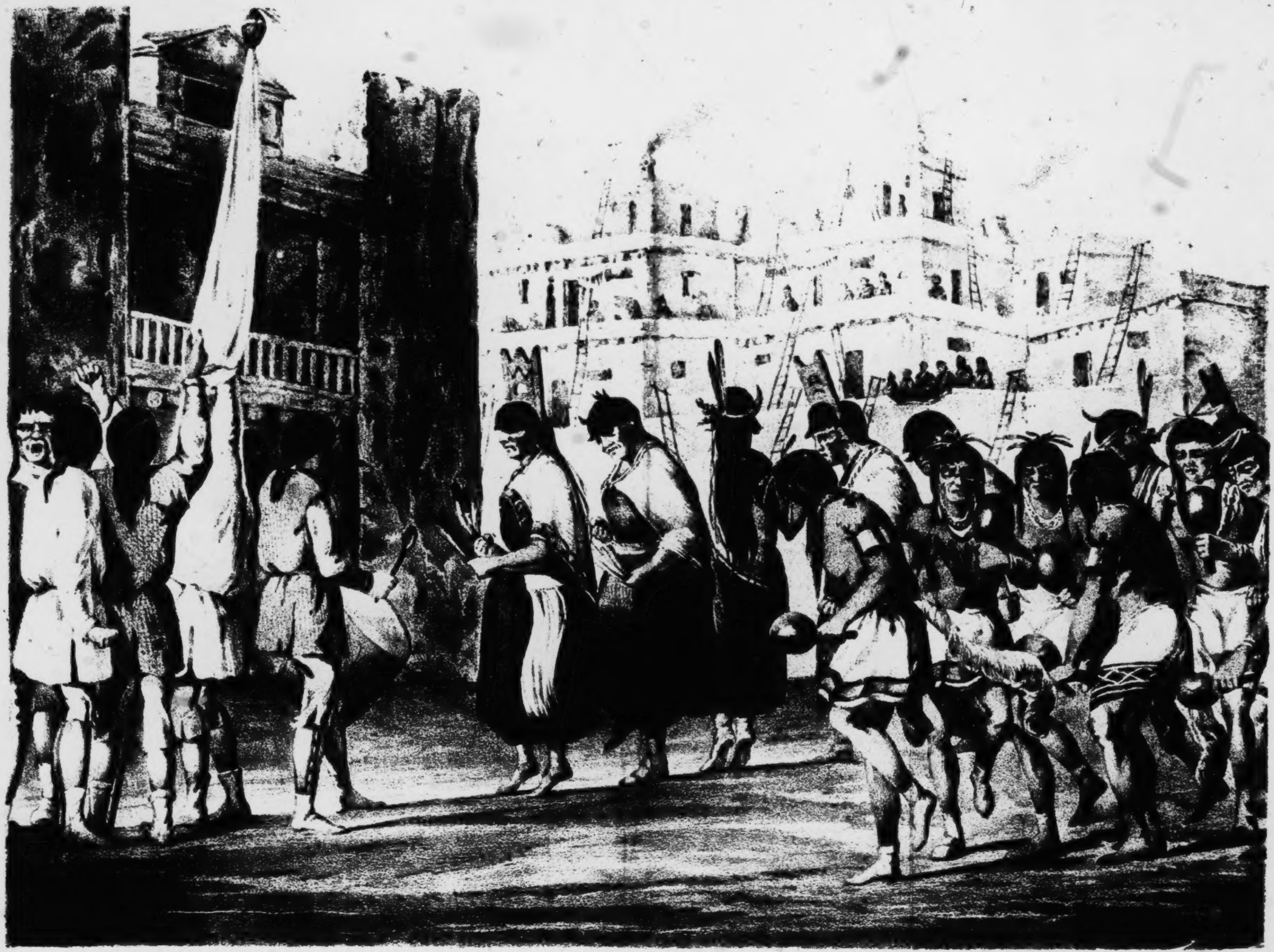

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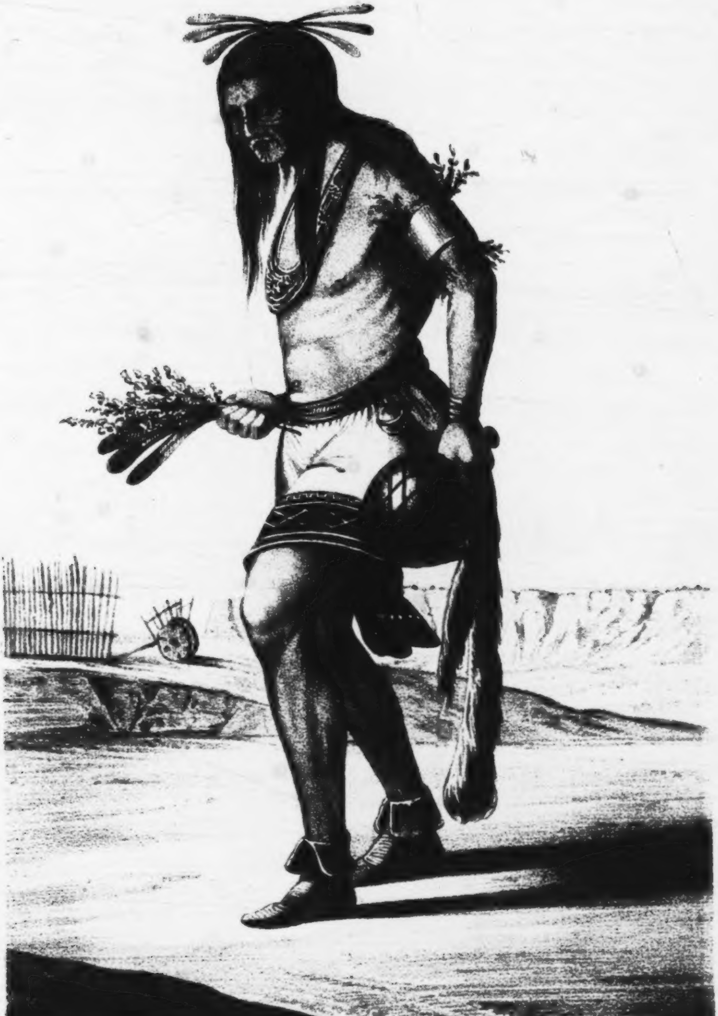
BUFFALO DANCE

Pueblo de Zuñi N. M.



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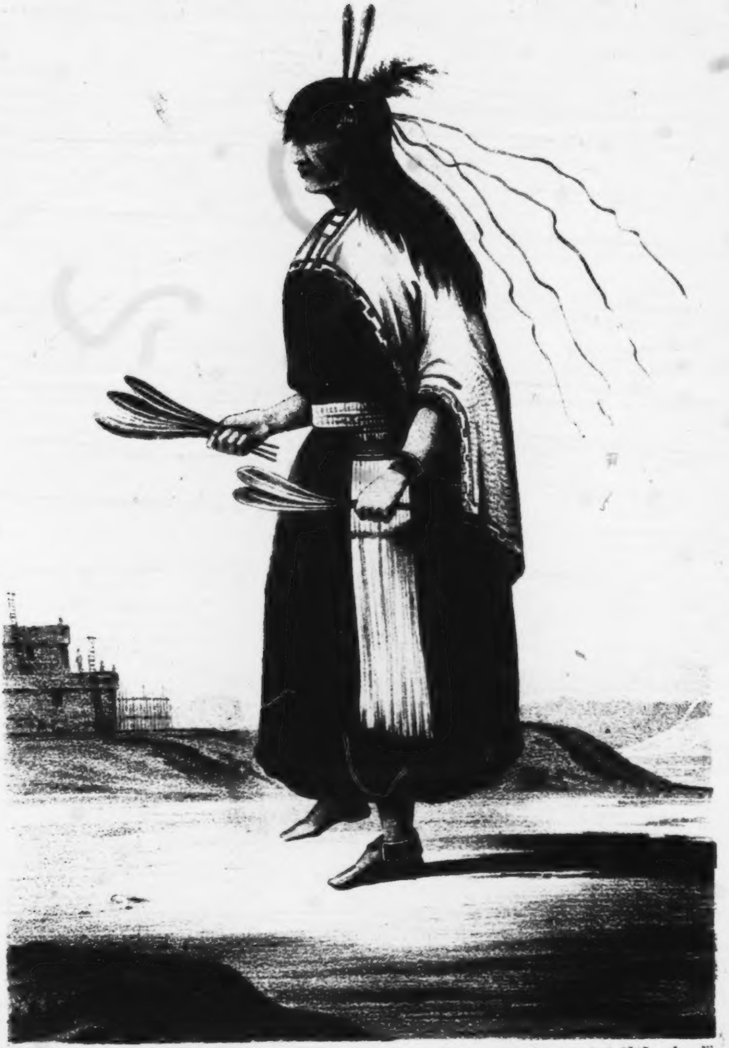
ZUÑI INDIAN
(Buffalo Dance)

Pl 3



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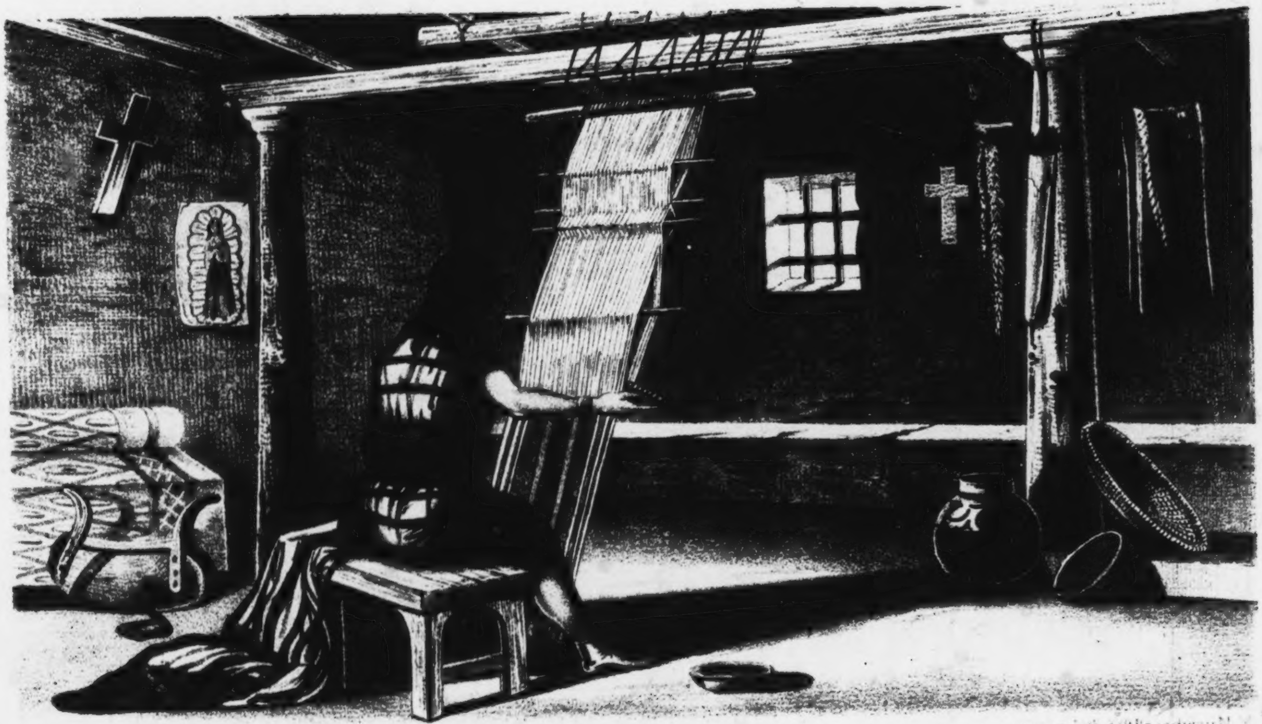
ZUÑI INDIAN WOMAN
(Buffalo Dance)

Pl. 4.



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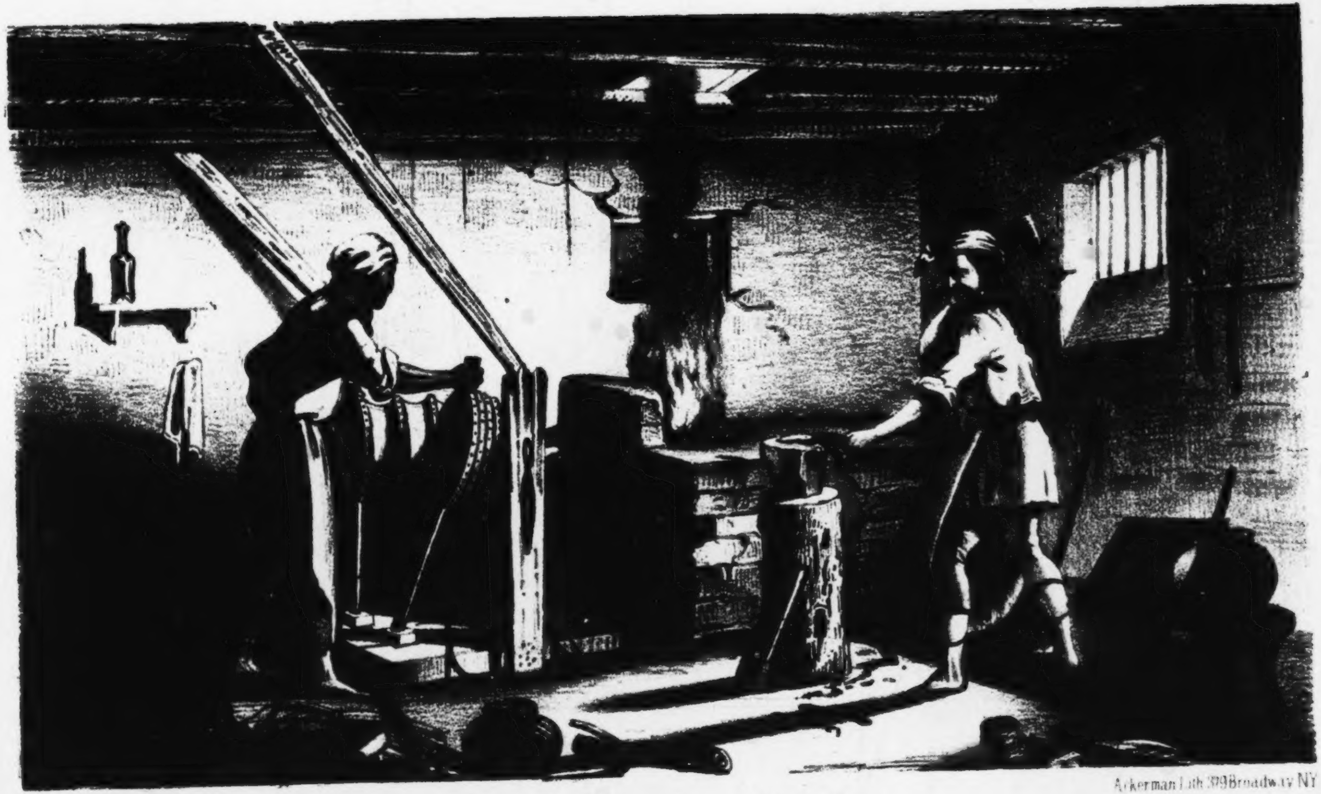
INDIAN WEAVING
(Pueblo Zuni.)

Pl 5



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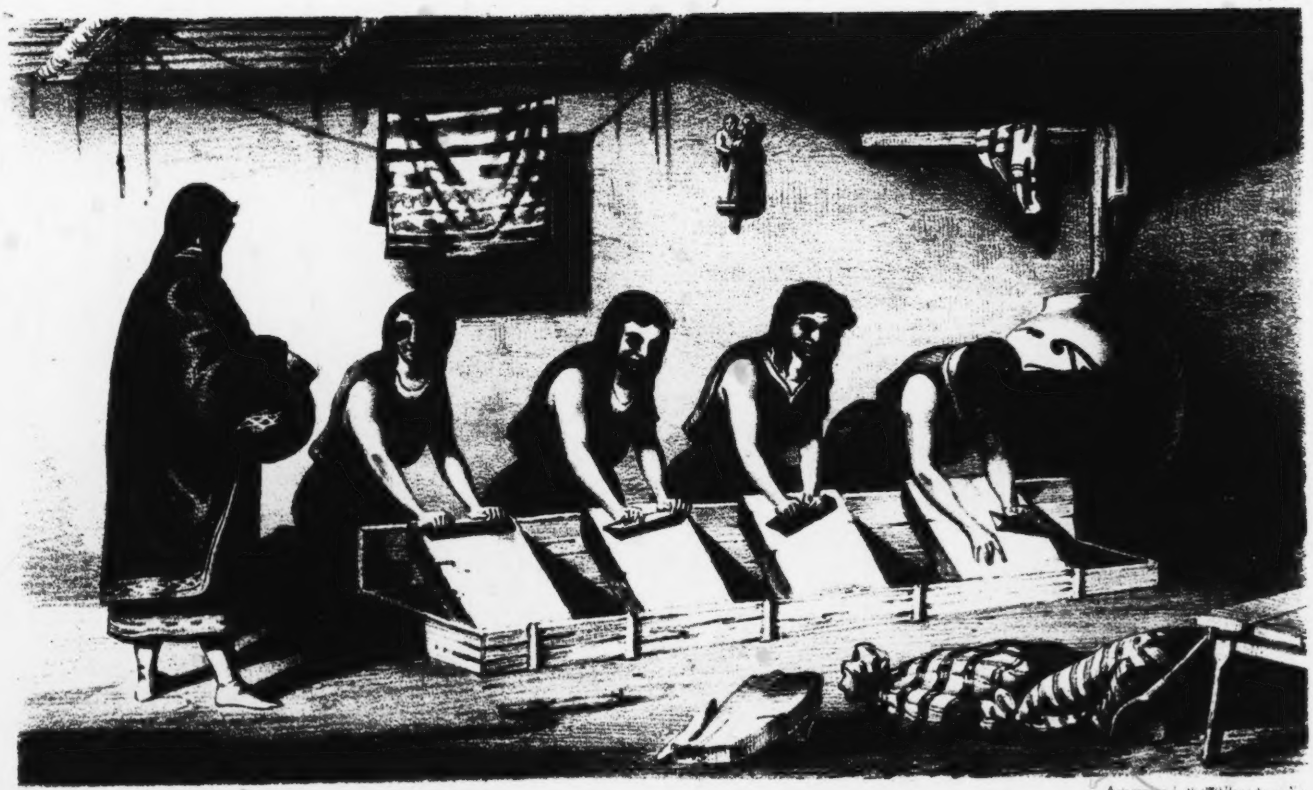
INDIAN BLACKSMITH SHOP (Pueblo Zuni)

Pl. 6



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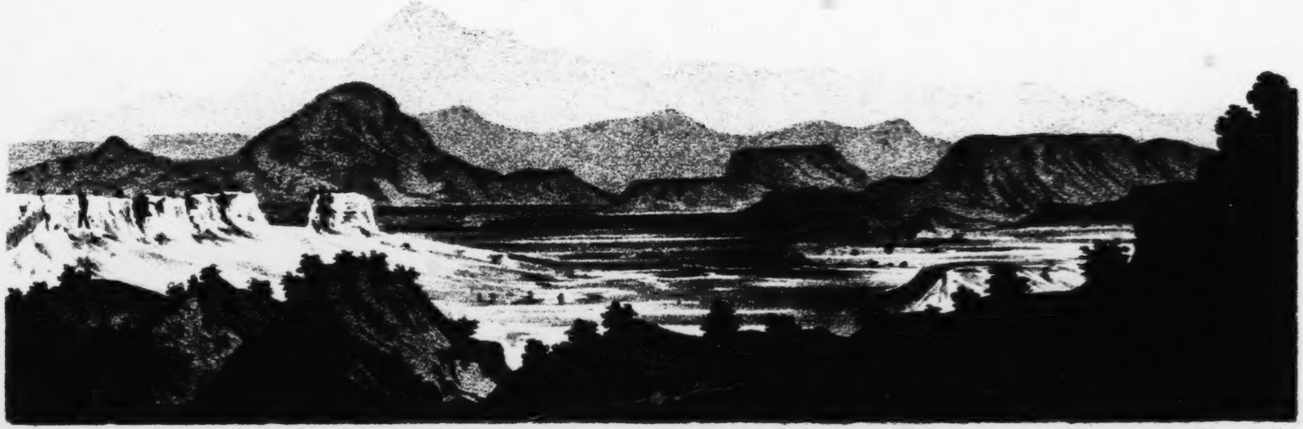
WOMEN GRINDING CORN (Pueblo Zuni.)



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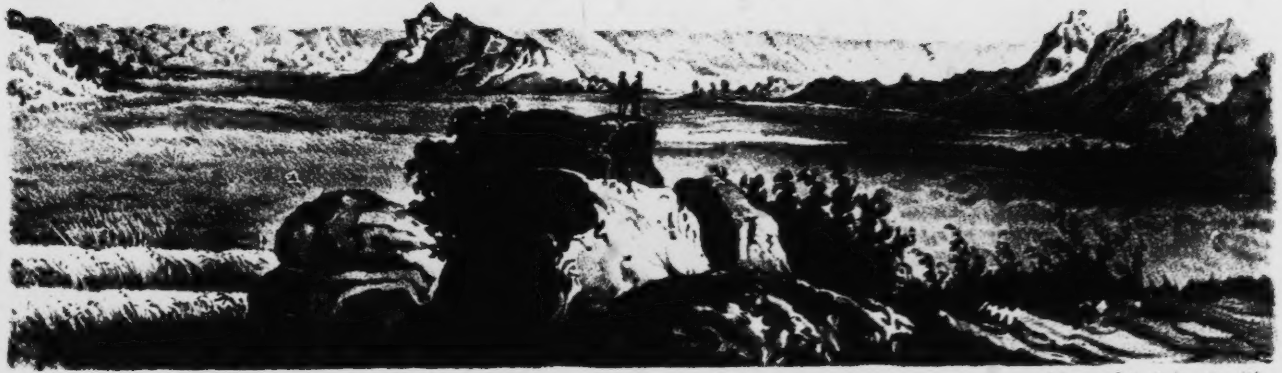
SIERRA MOGOLLON from near Camp 4.

Pl 8



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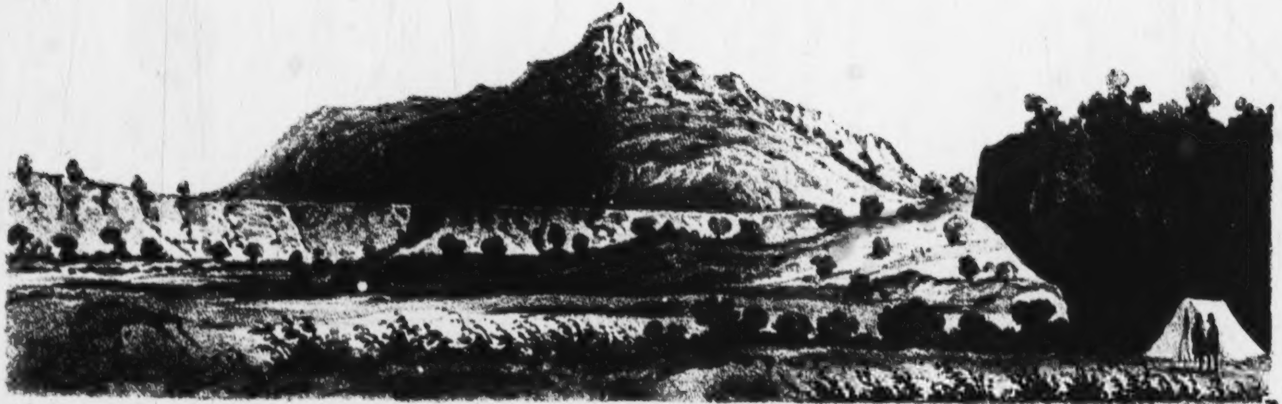
LEROUX ISLAND - LITTLE COLORADO RIVER, near Camp 4



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CAÑON PEAK from Camp 7

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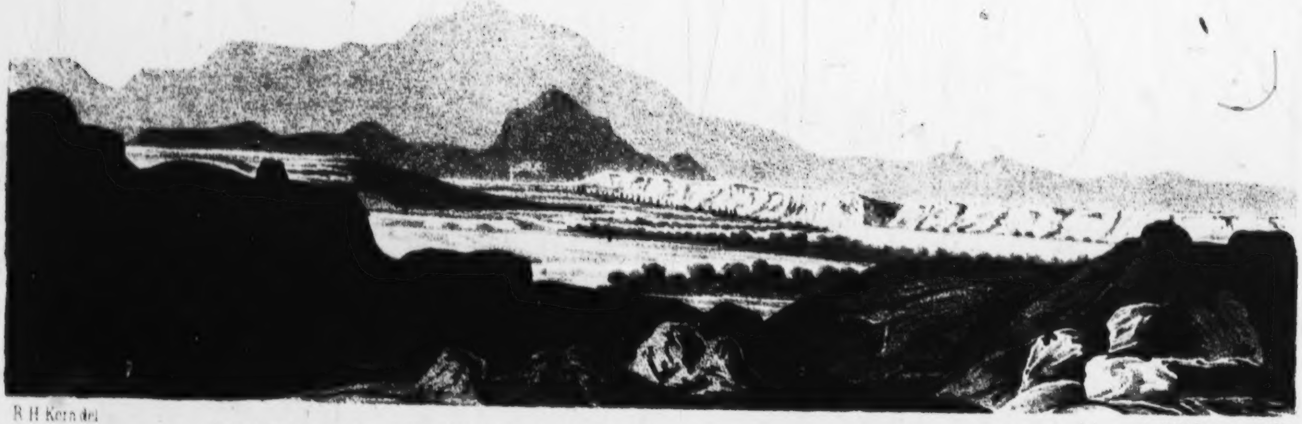

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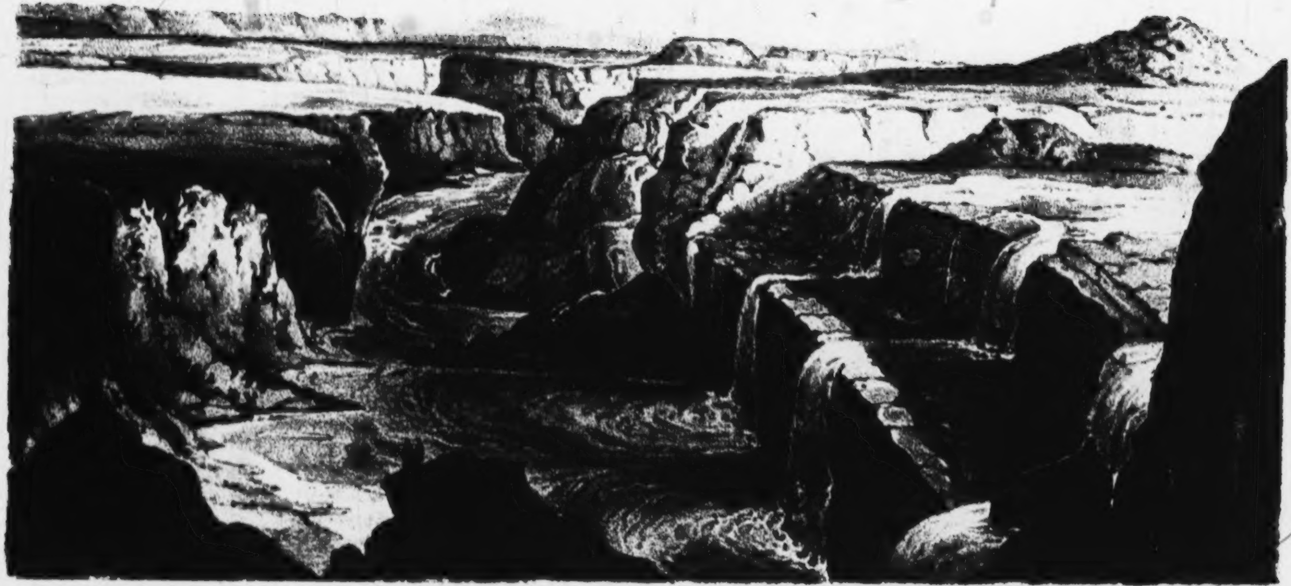
VALLEY OF THE LITTLE COLORADO RIVER AND SAN FRANCISCO MOUNTAIN
from near Camp 6



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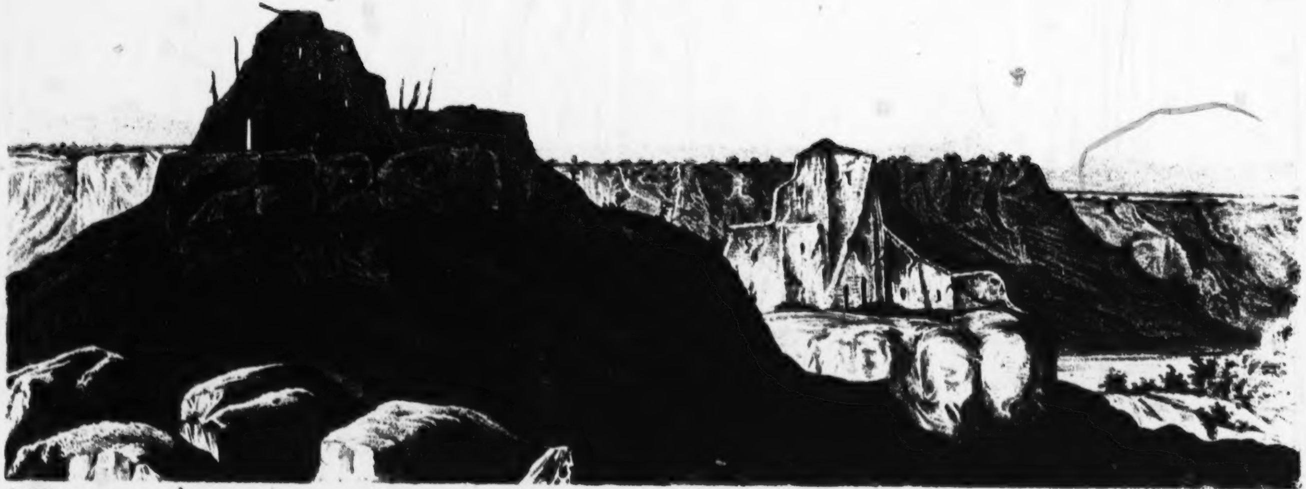
CASCADE OF THE LITTLE COLORADO RIVER, near Camp 13.



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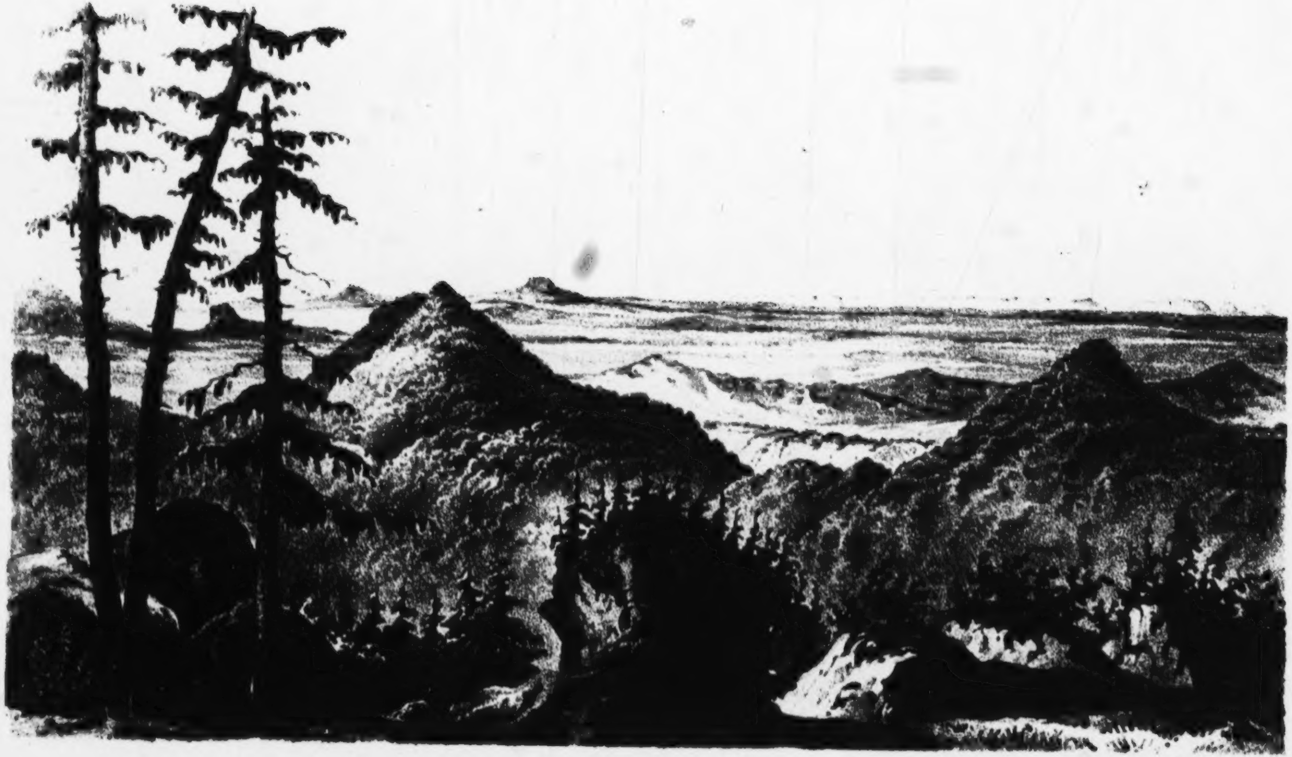
RUINED PUEBLOS (between Camp 13 and 14)



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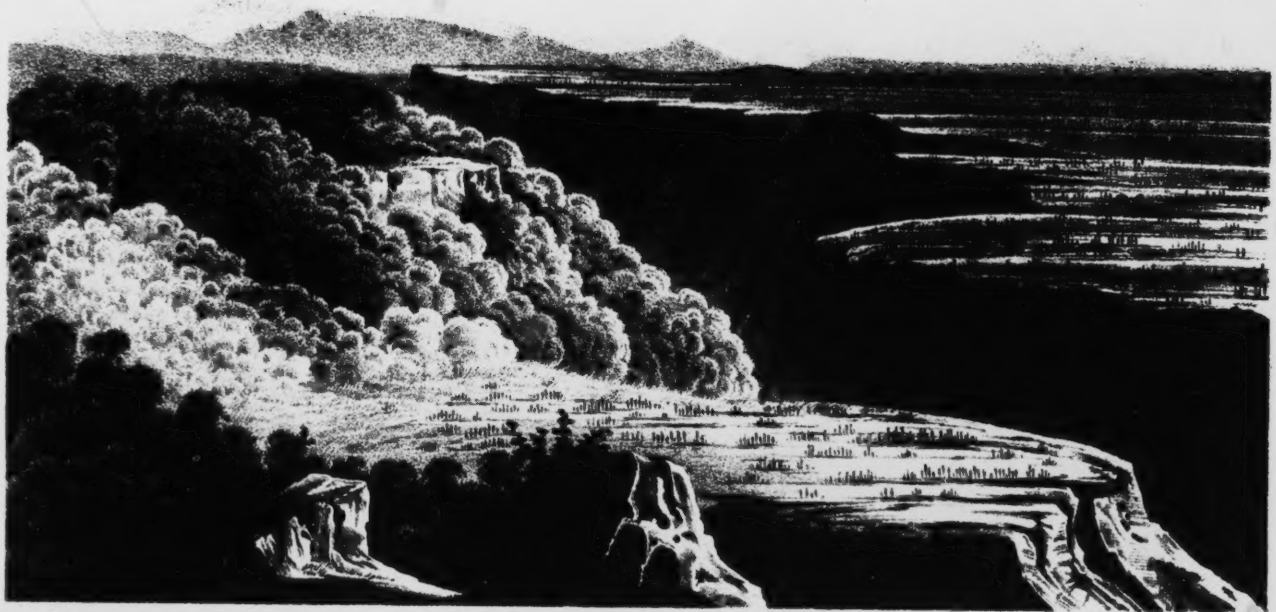
VIEW LOOKING WEST, from Camp 16



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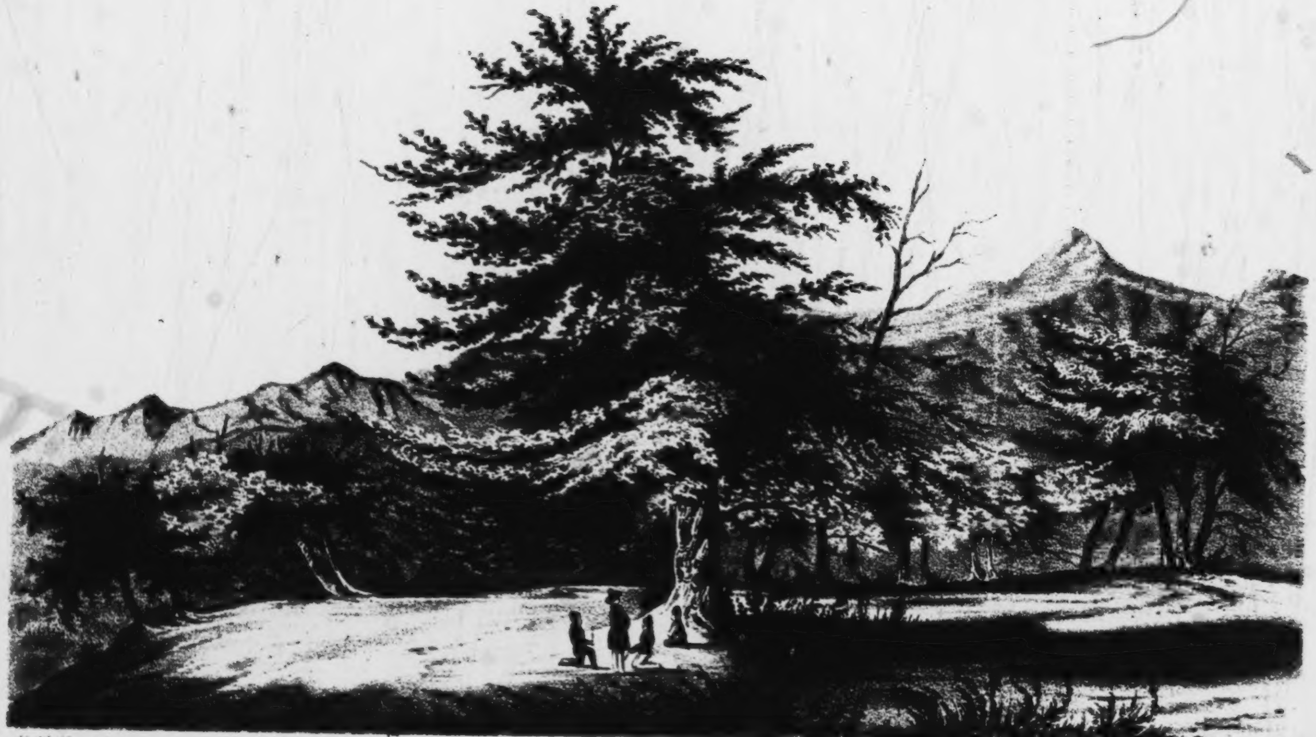
VIEW OF CAÑON. near Camp 39.



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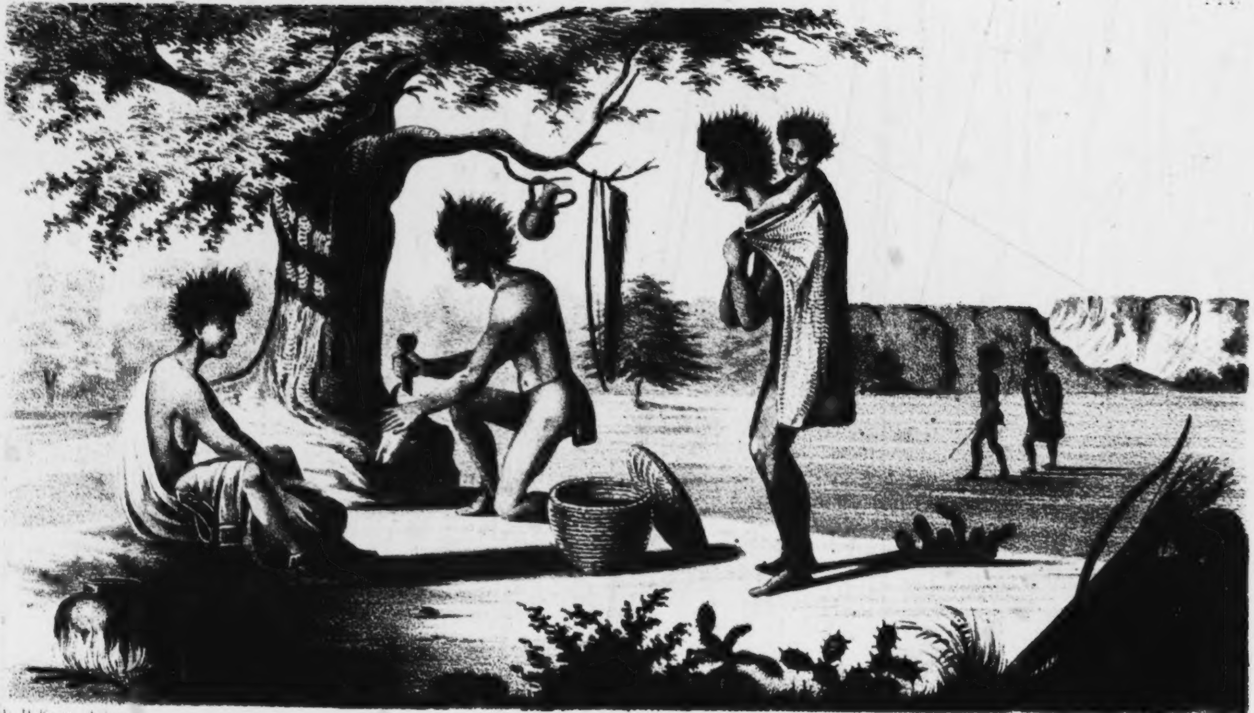
JUNIPERUS PLOCHYDERMA [ROUGH BARKED CEDAR.]
[Torrey] Camp 19

Pl. 17



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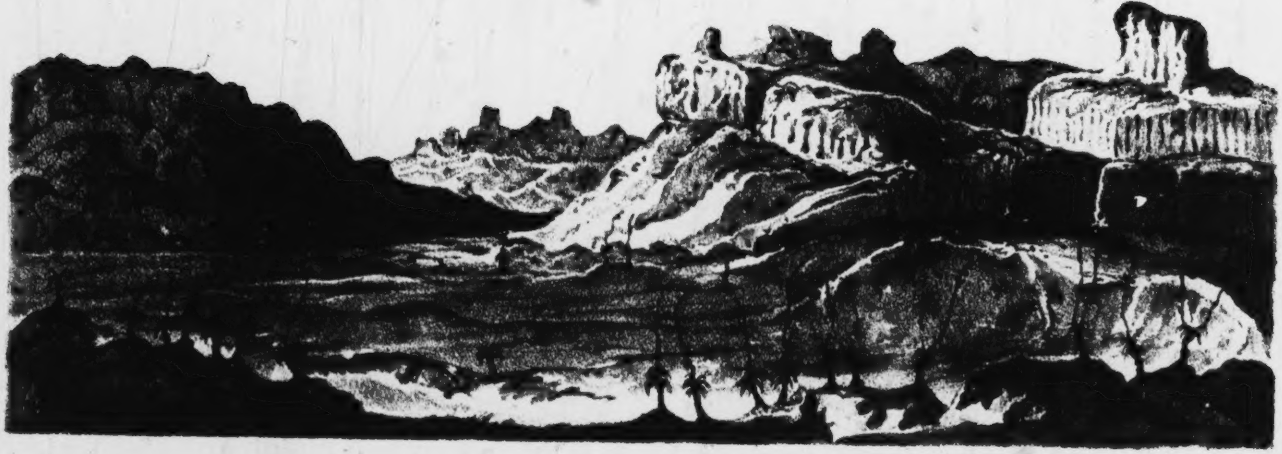
YAMPAI INDIANS

Pl. 18



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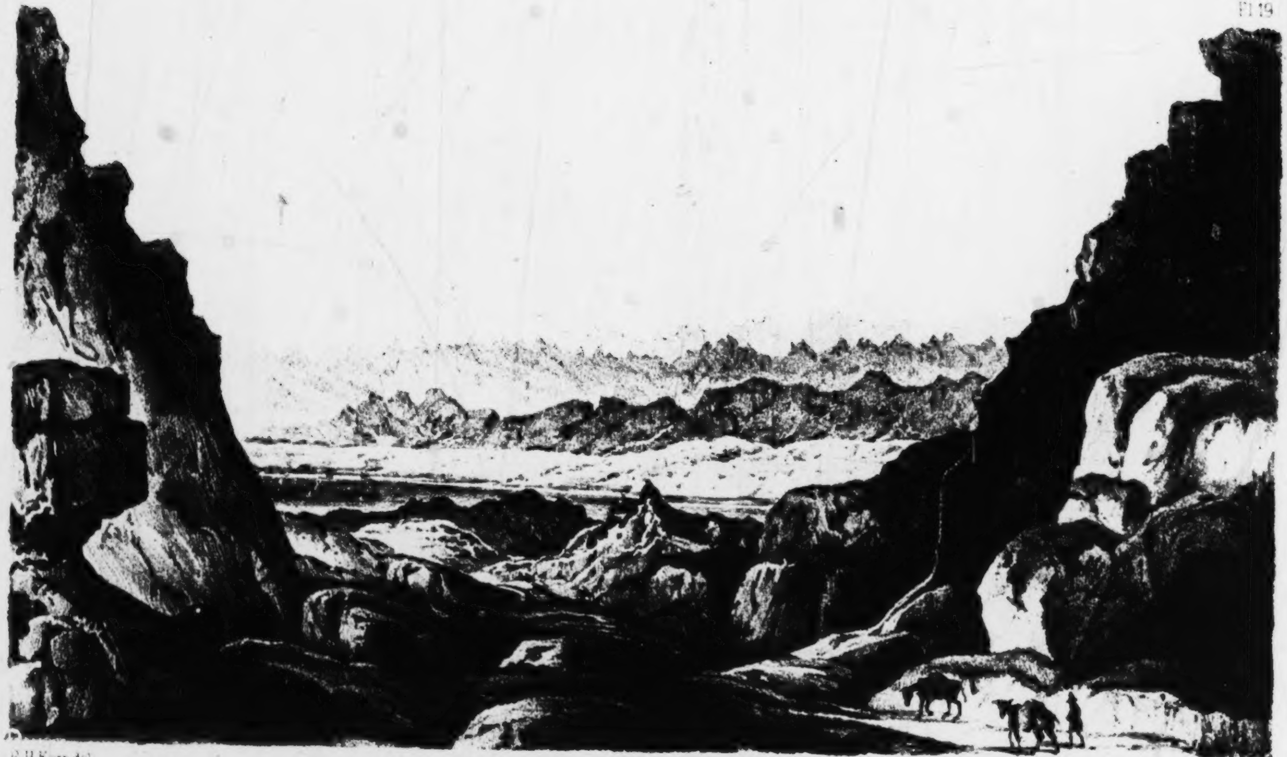
MOUNTAIN PASS, near Camp 31

Pl. 19



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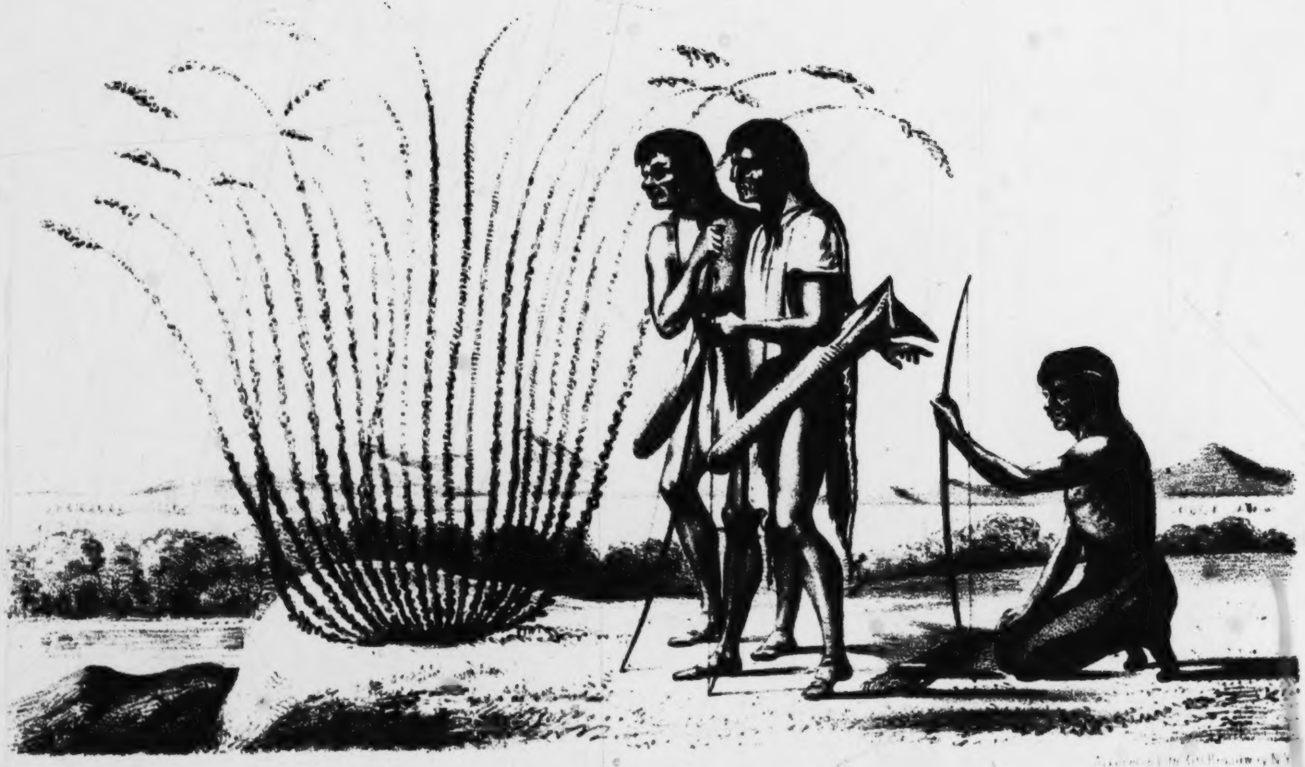
FIRST VIEW OF THE BIG COLORADO RIVER
from summit of mountain between Camps 31 and 32



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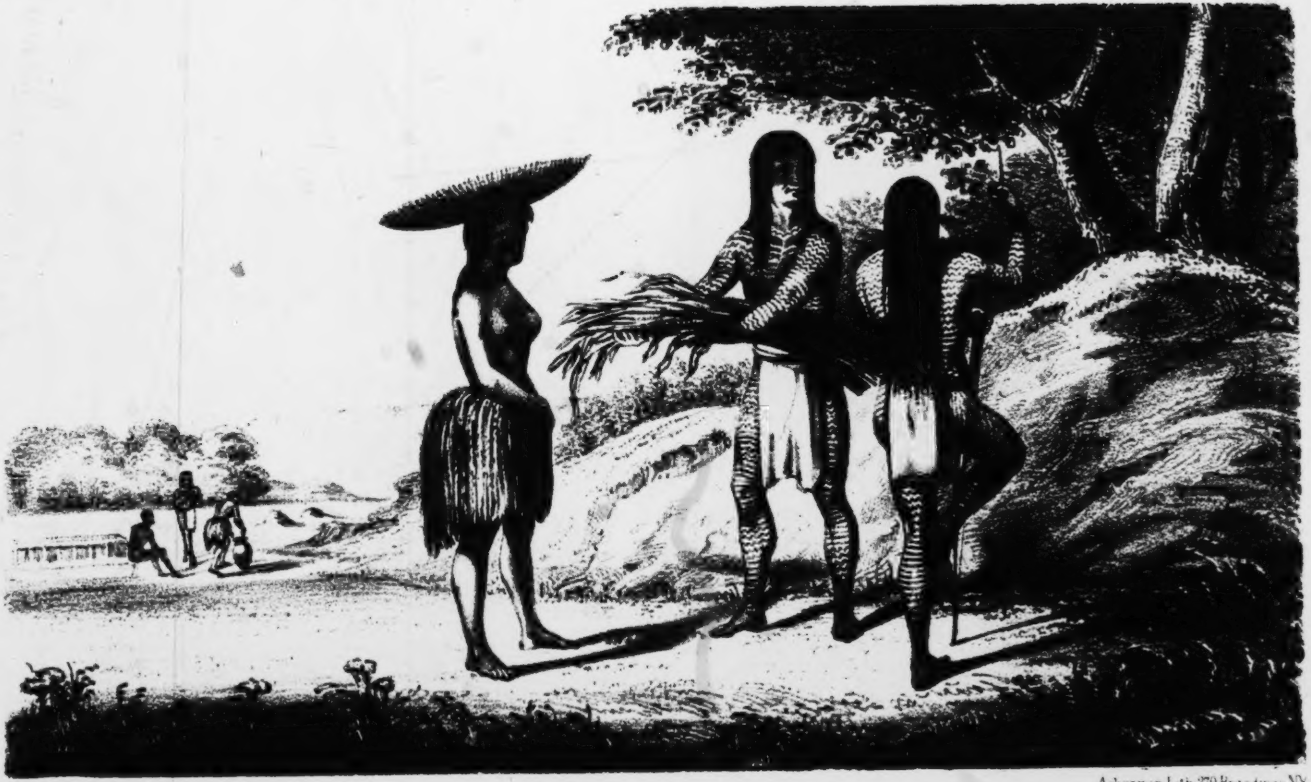
CHUNNA INDIANS



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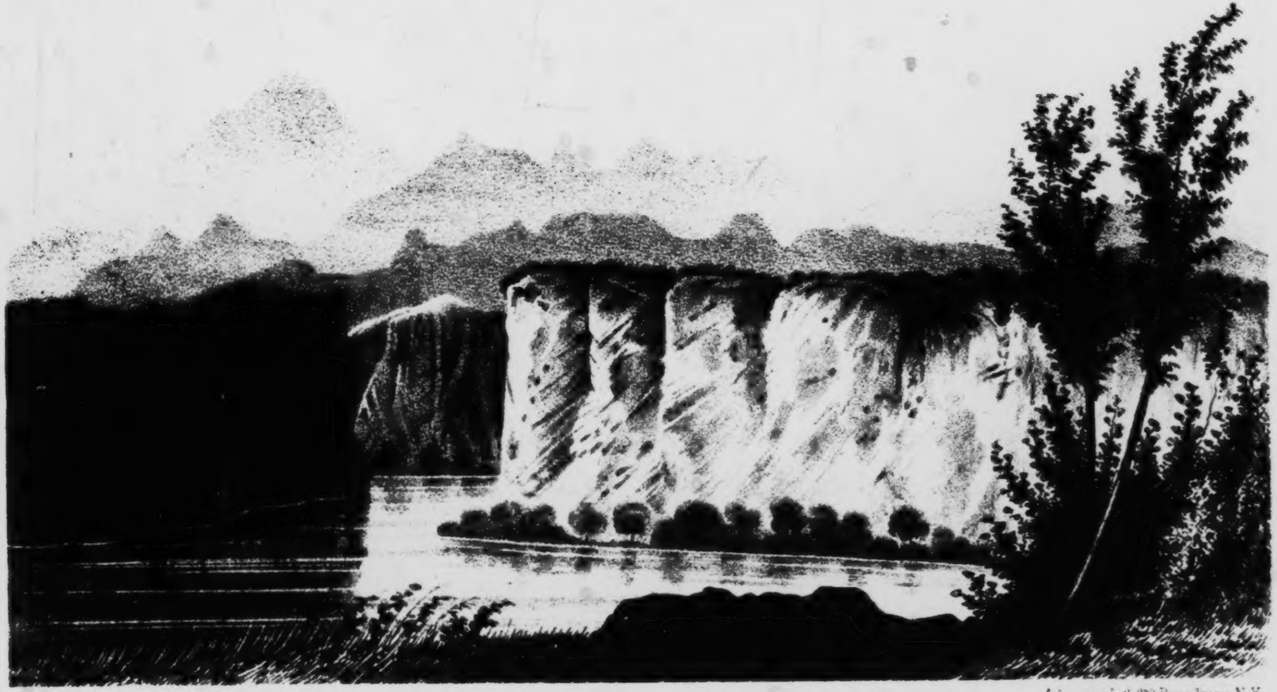
MOHAVE INDIANS (Big Colorado River N. M.

Pl 22



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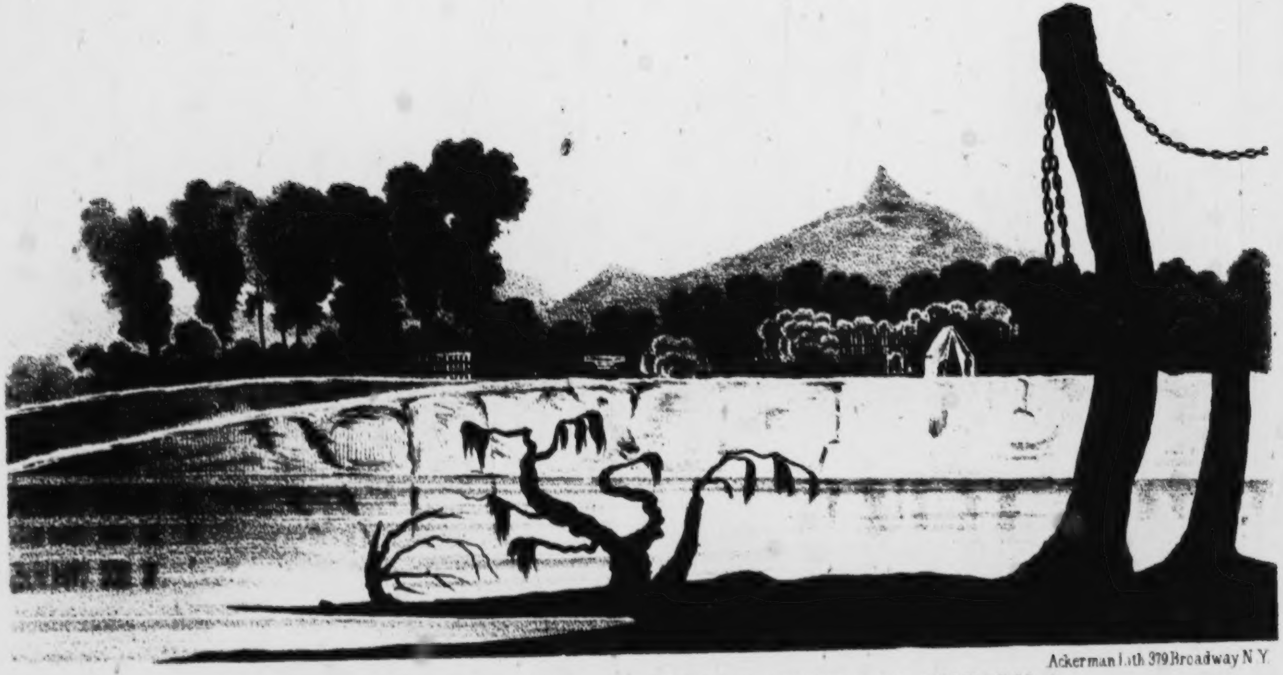
ON THE BIG COLORADO RIVER near Camp 37

Pl



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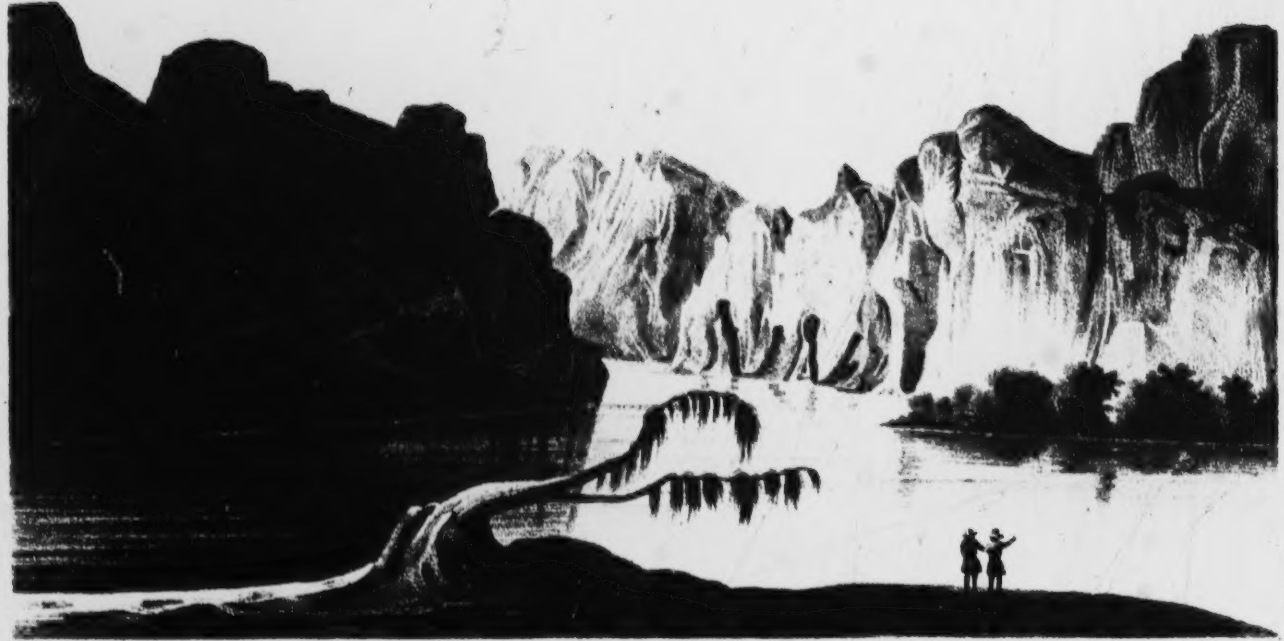
CAMP YUMA. BIG COLORADO BELOW THE MOUTH OF THE GILA

Pl



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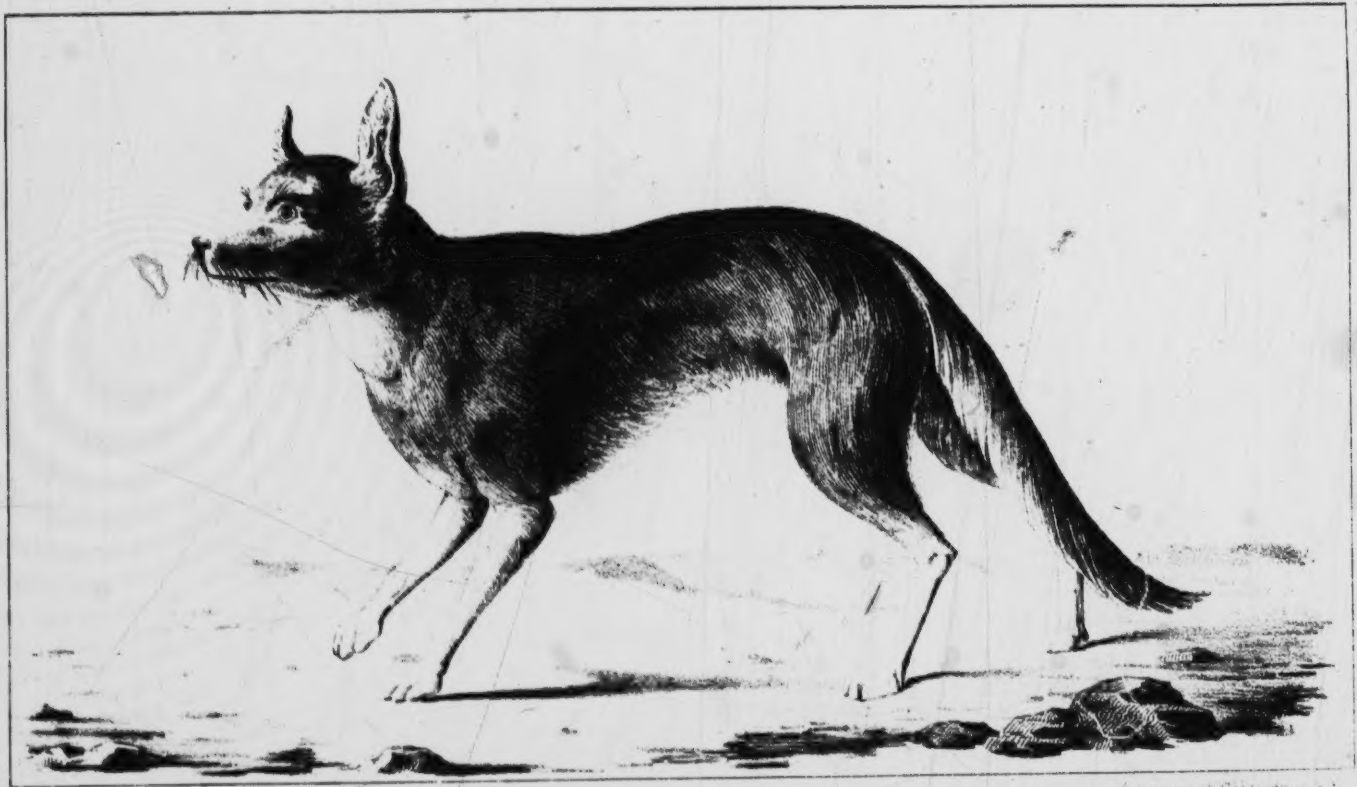
ON THE BIG COLORADO near Camp 37 LOOKING NORTH



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CANIS FRUSTROR

(Woodhouse.)

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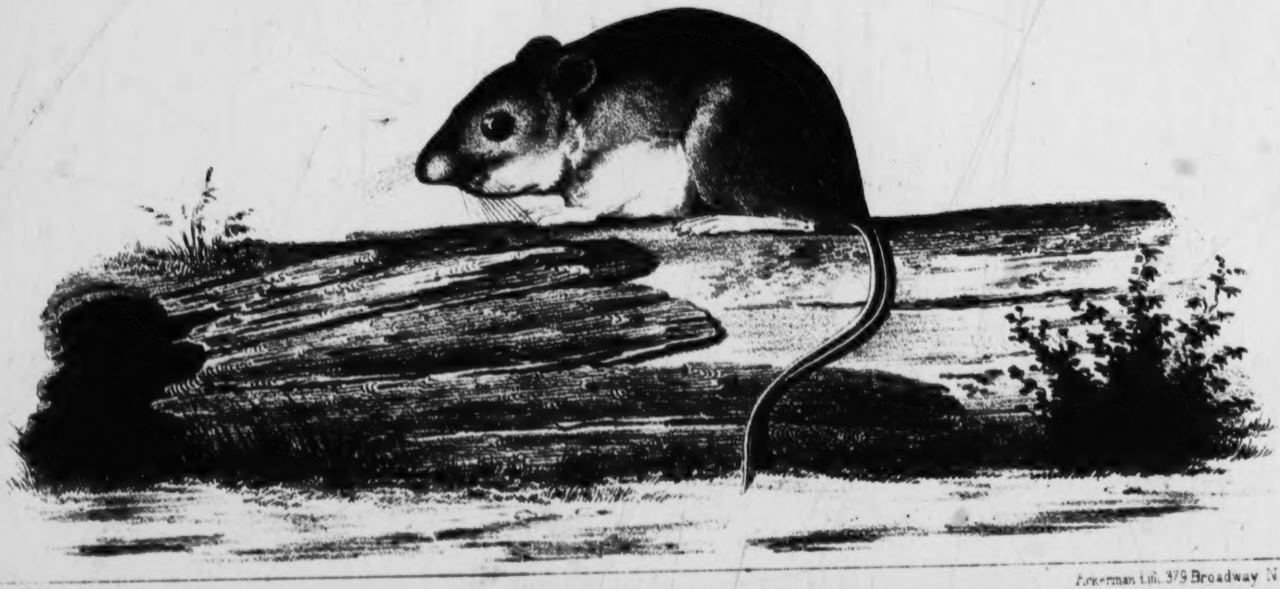
HESPEROMYS TEXANA



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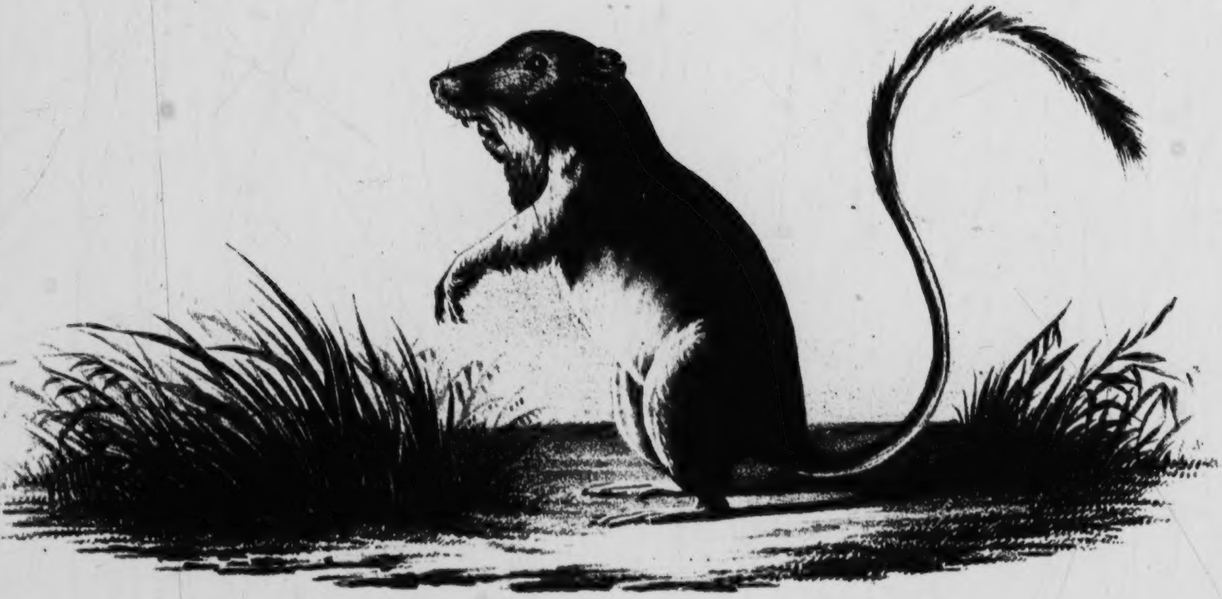
HESPERUMYS TEXANA

Plate 3



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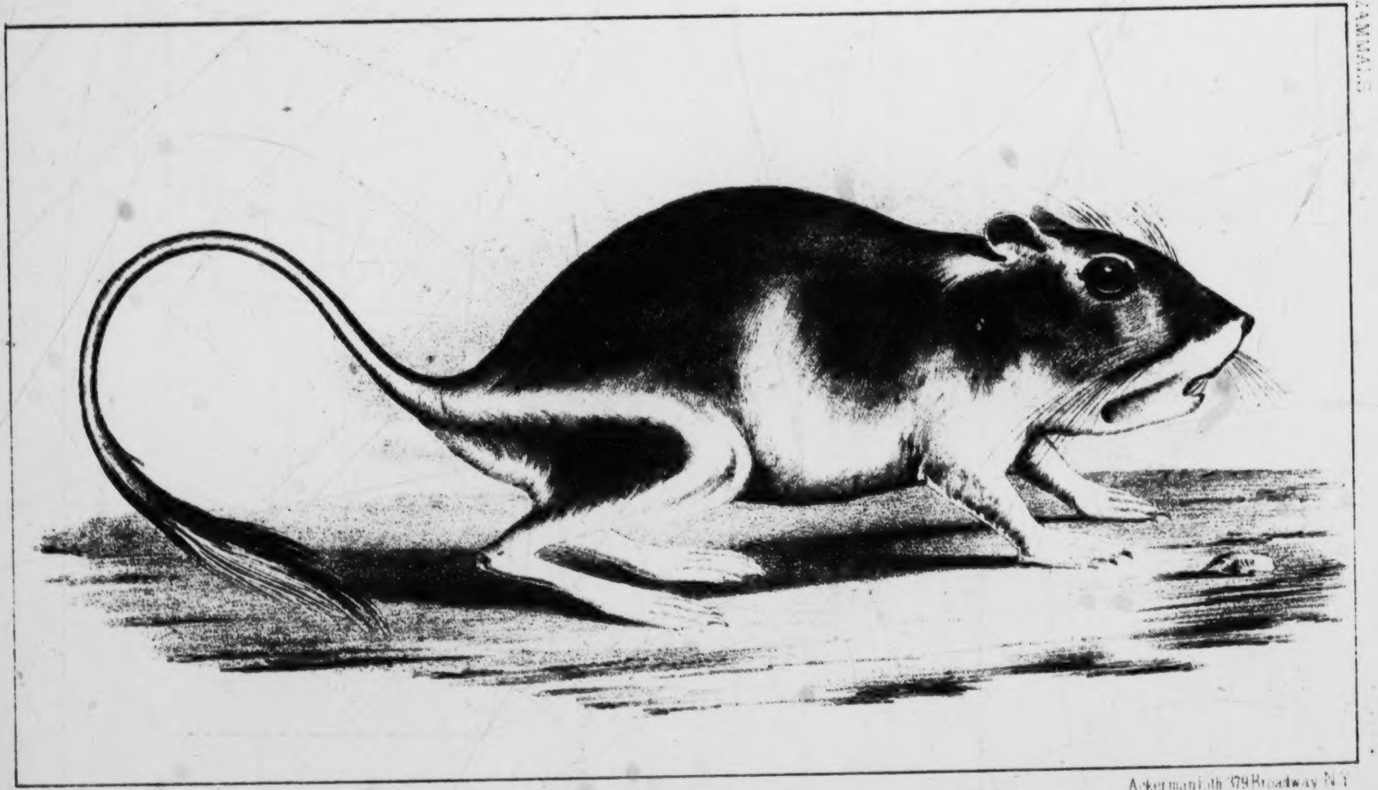
PEROGNATHUS PENECILLATUS
(WOODHOUSE) p 49.



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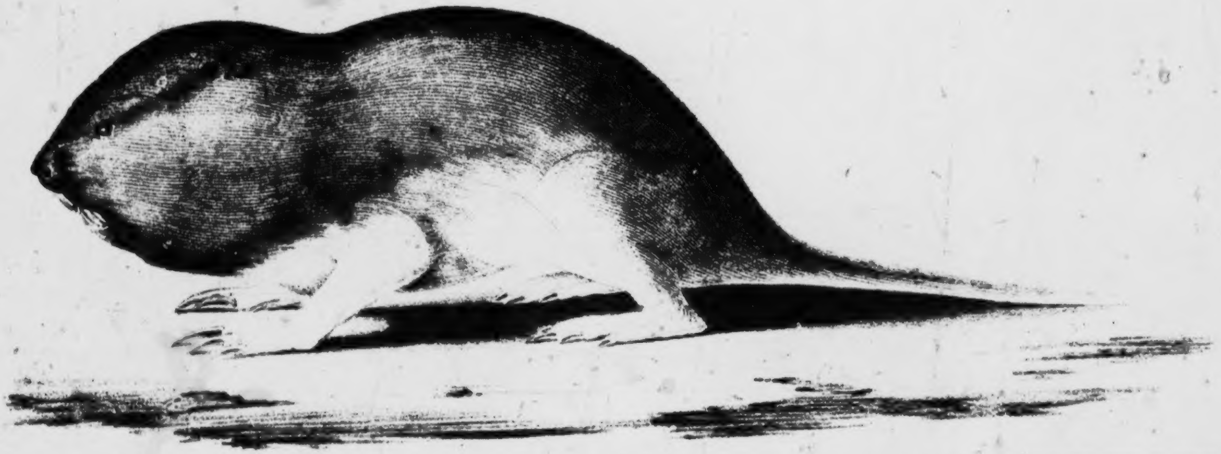
DYPODOMYS ORDI
[WOODHOUSE] p. 50



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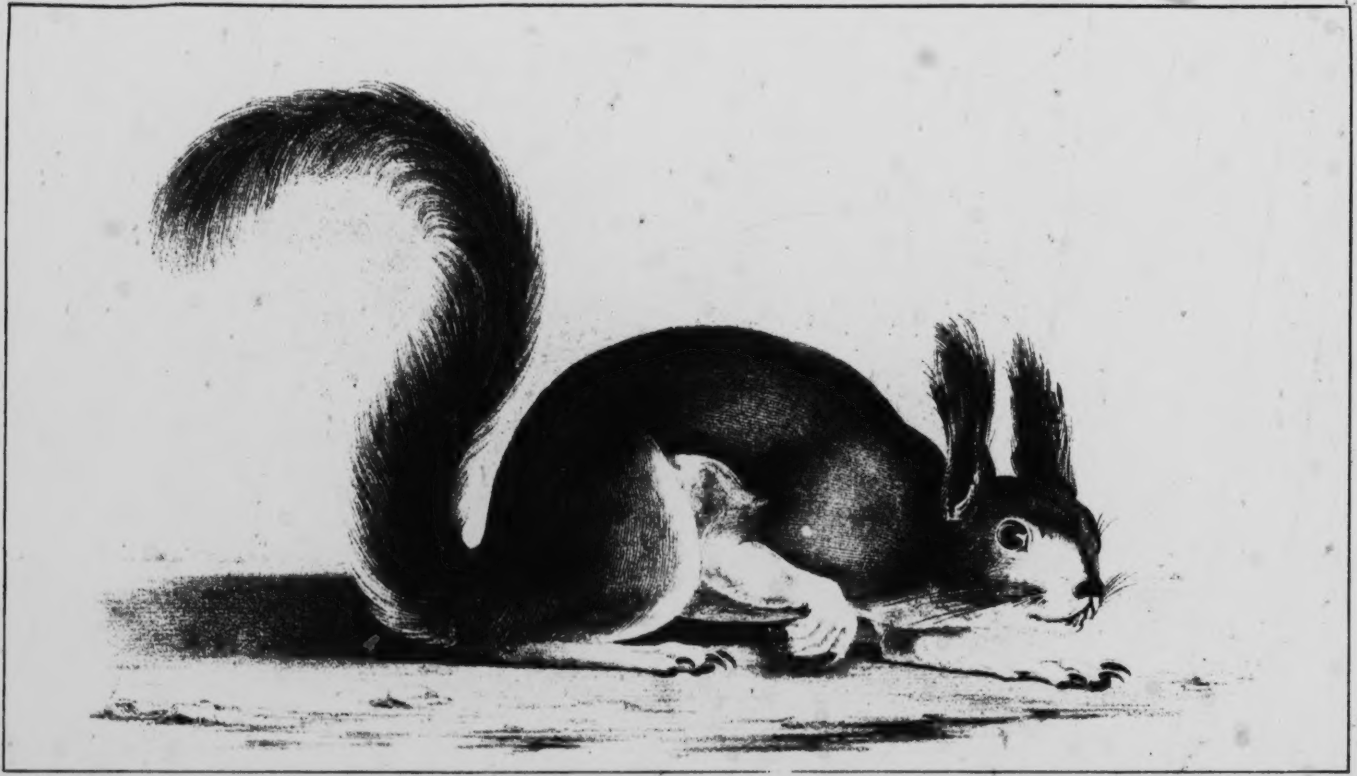
GEOMYS FULVUS.
(WOODHOUSE) p. 51



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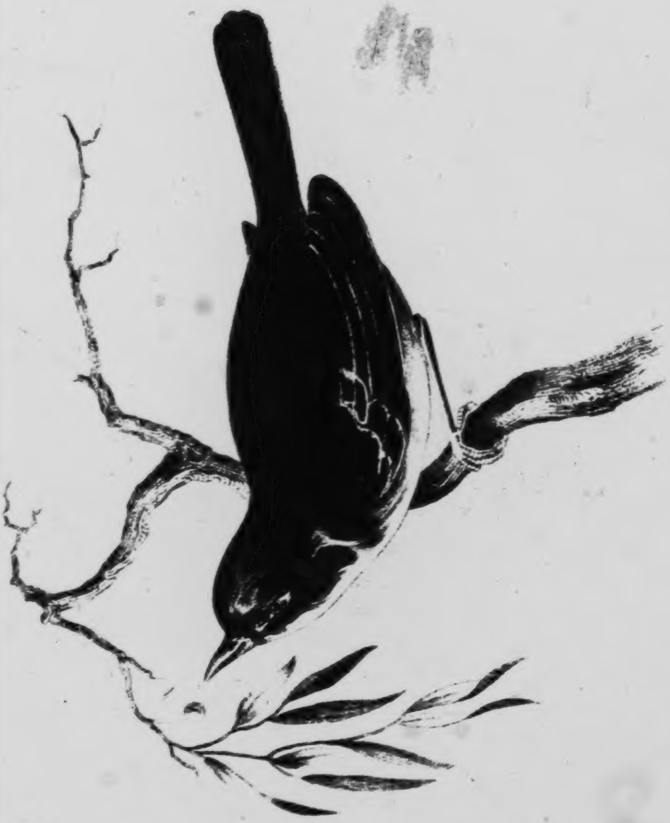
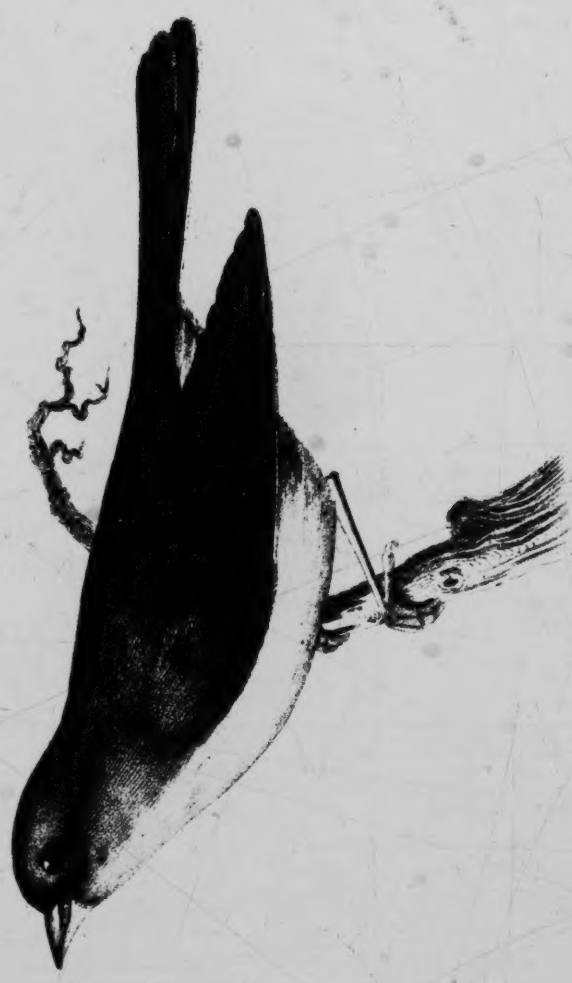
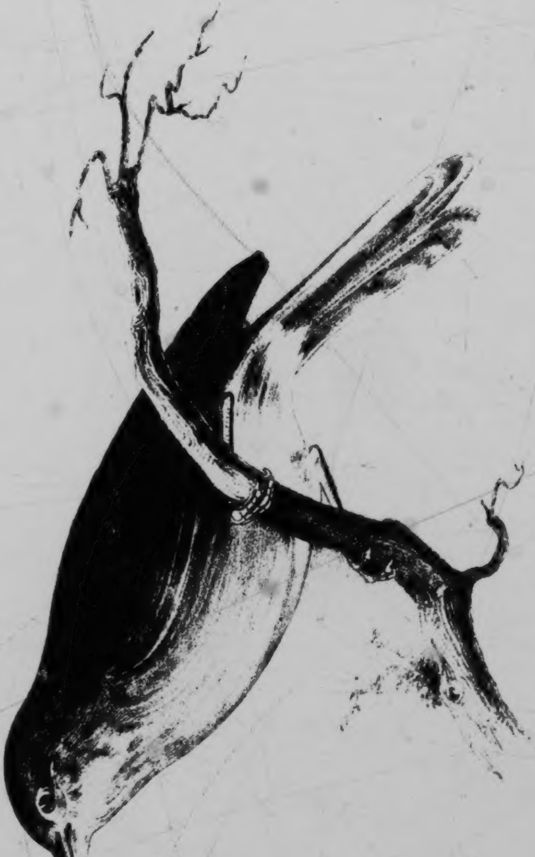
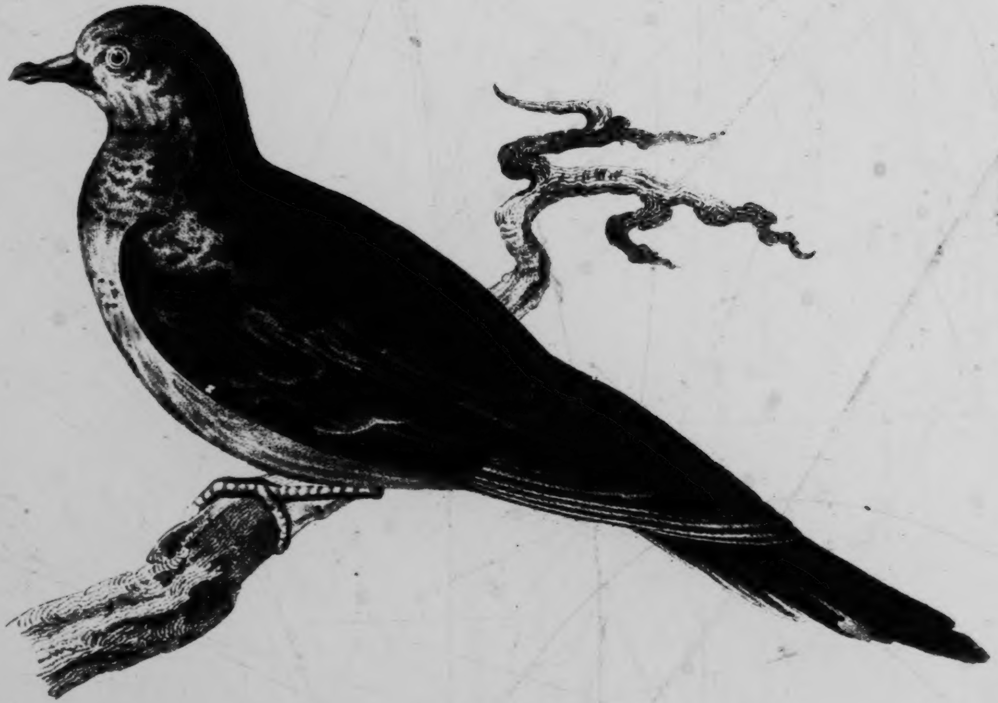
SCIURUS ABERTI.

[illegible], p. [illegible]









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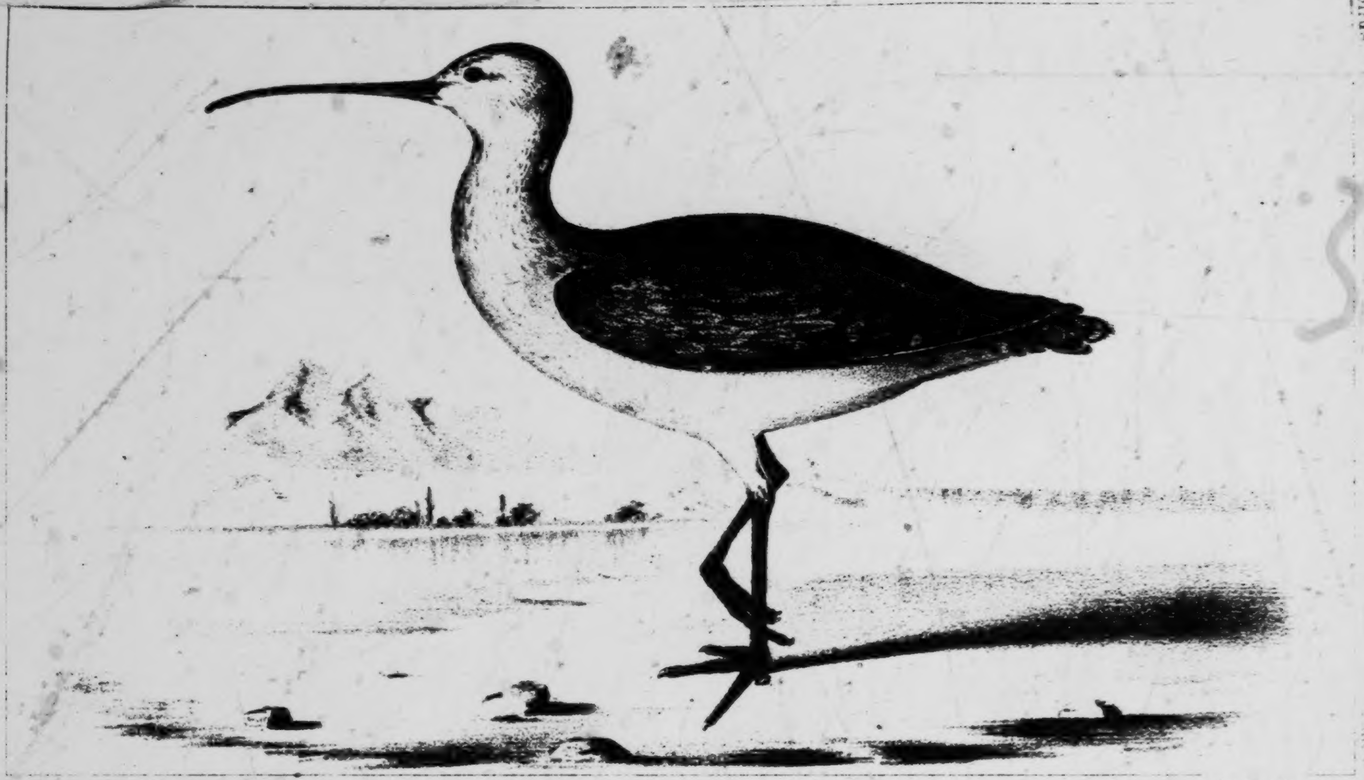
ECTOPISTES MARGINELLUS
[WOODHOUSE] p. 93



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NUMENIUS OCCIDENTALIS.
(WOODHOUSE) p.98

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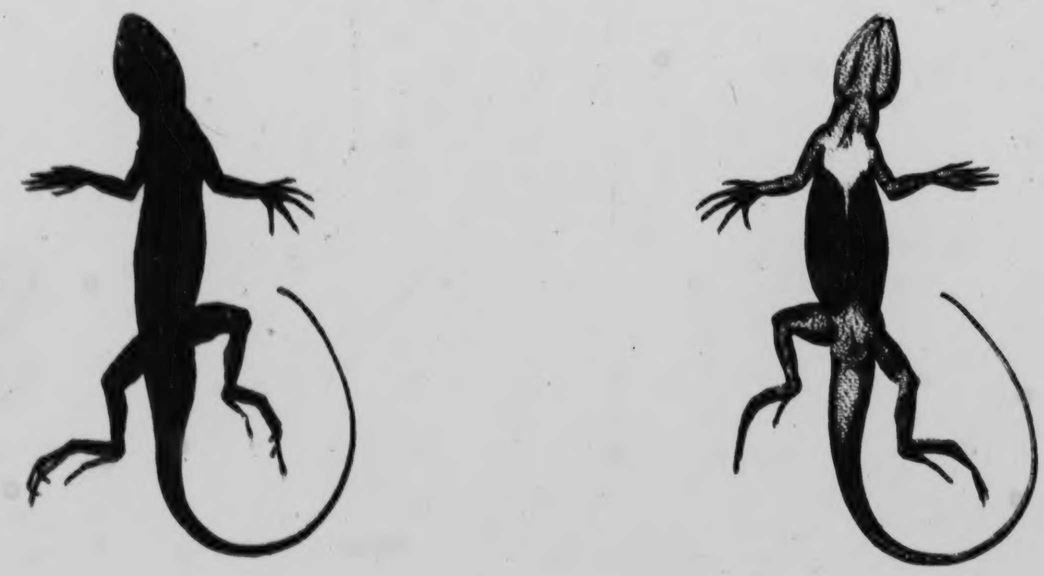

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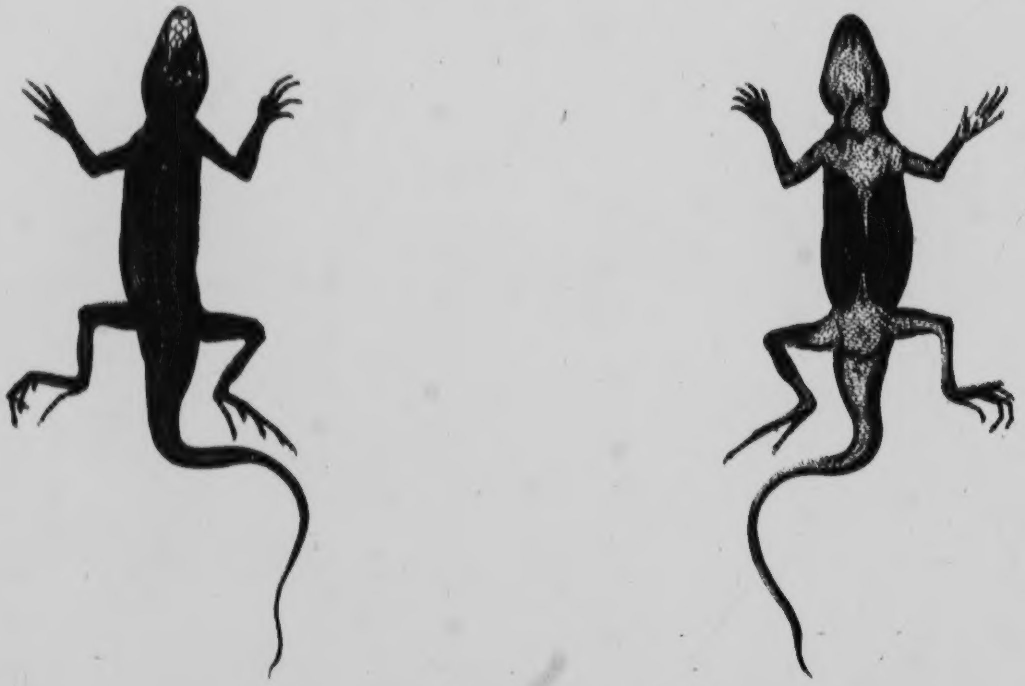
SCELOPORUS DELICATISSIMUS
[HALLOWELL]

Pl 2.



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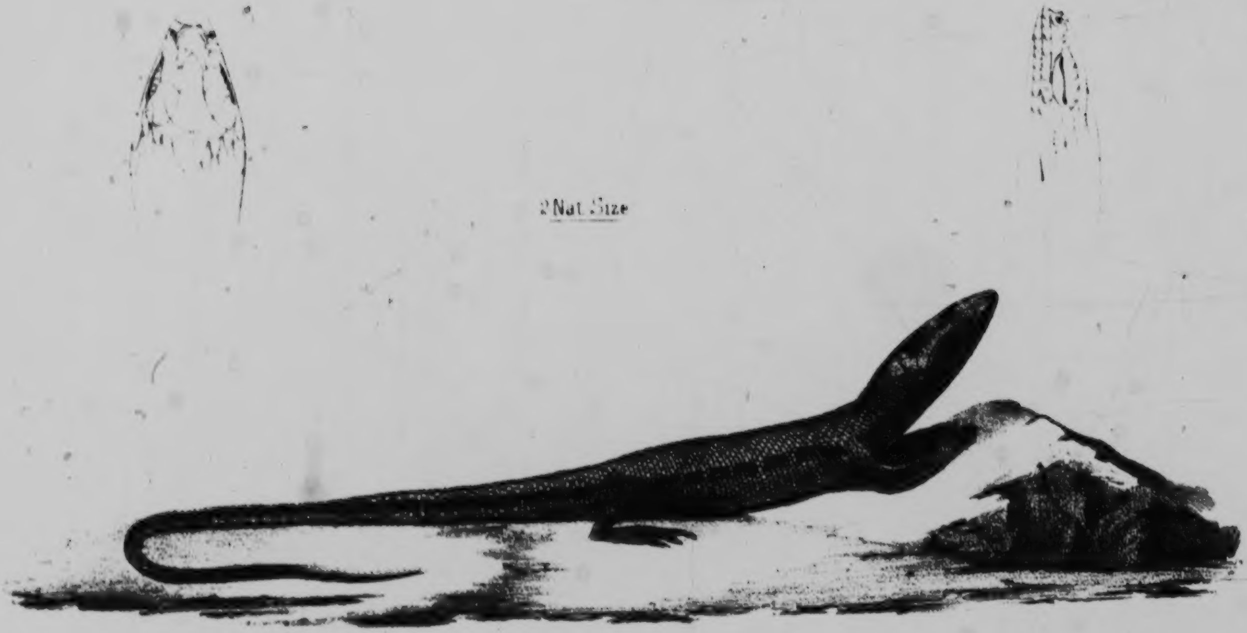
SCELOPORUS MARMORATUS.
[HALLOWELL.]

Pl. 3



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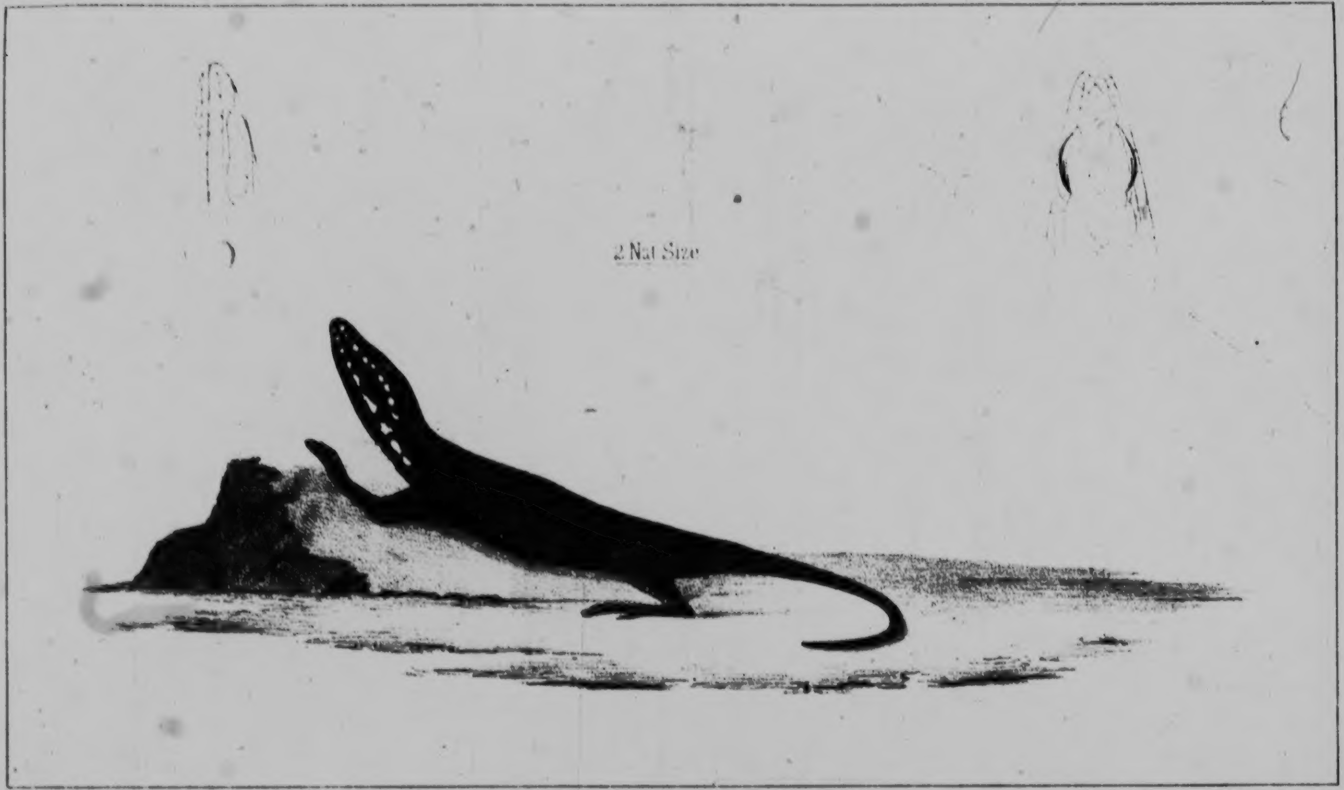
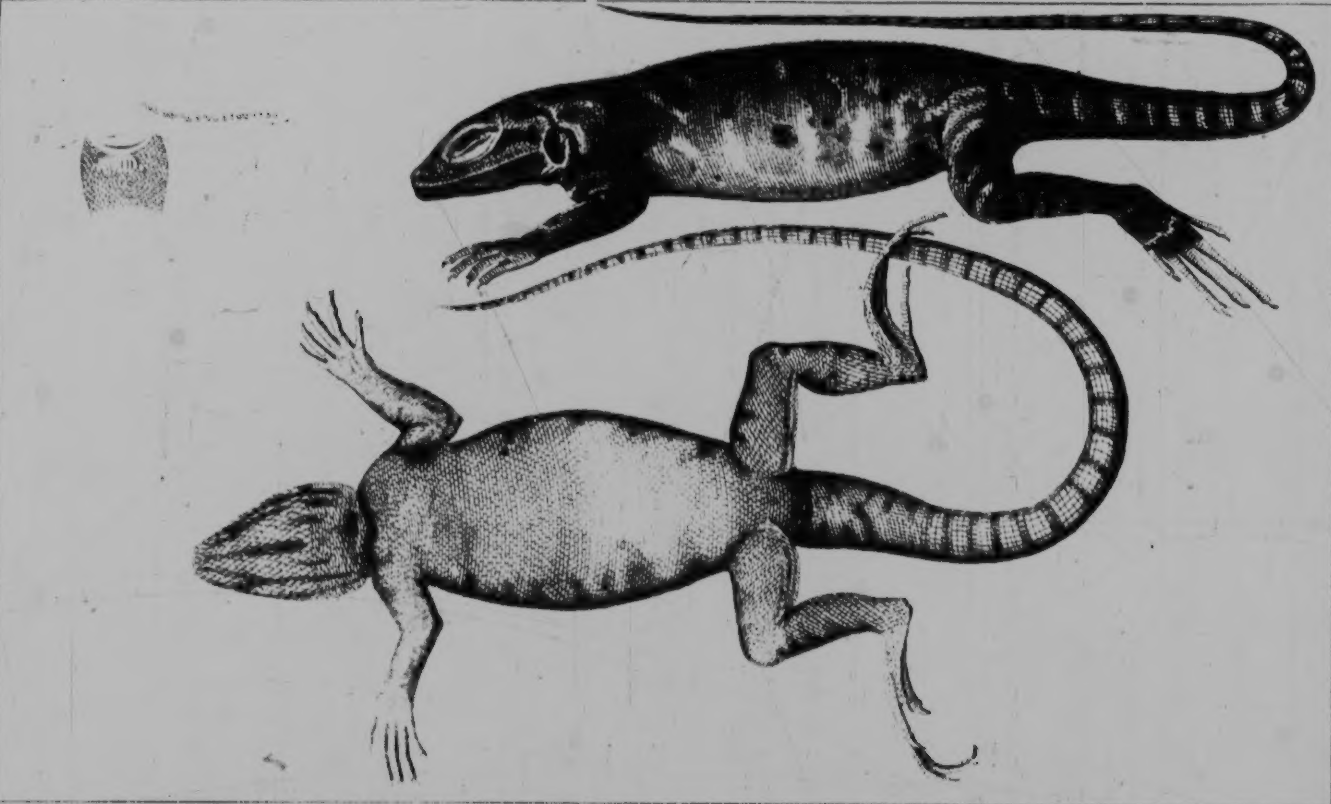
ELGARIA MARGINATA
[HALLOWELL.]



R H Kern del

Ackerman Lith 379 Broadway N Y

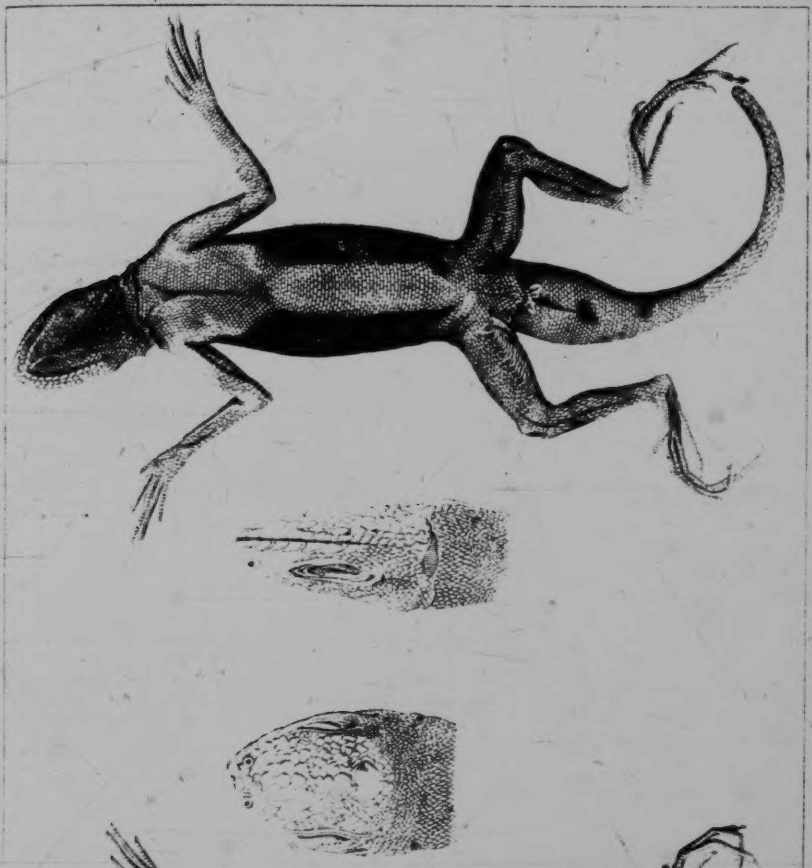
LAMPROSAURUS GUTTULATUS
[HALLOWELL.]

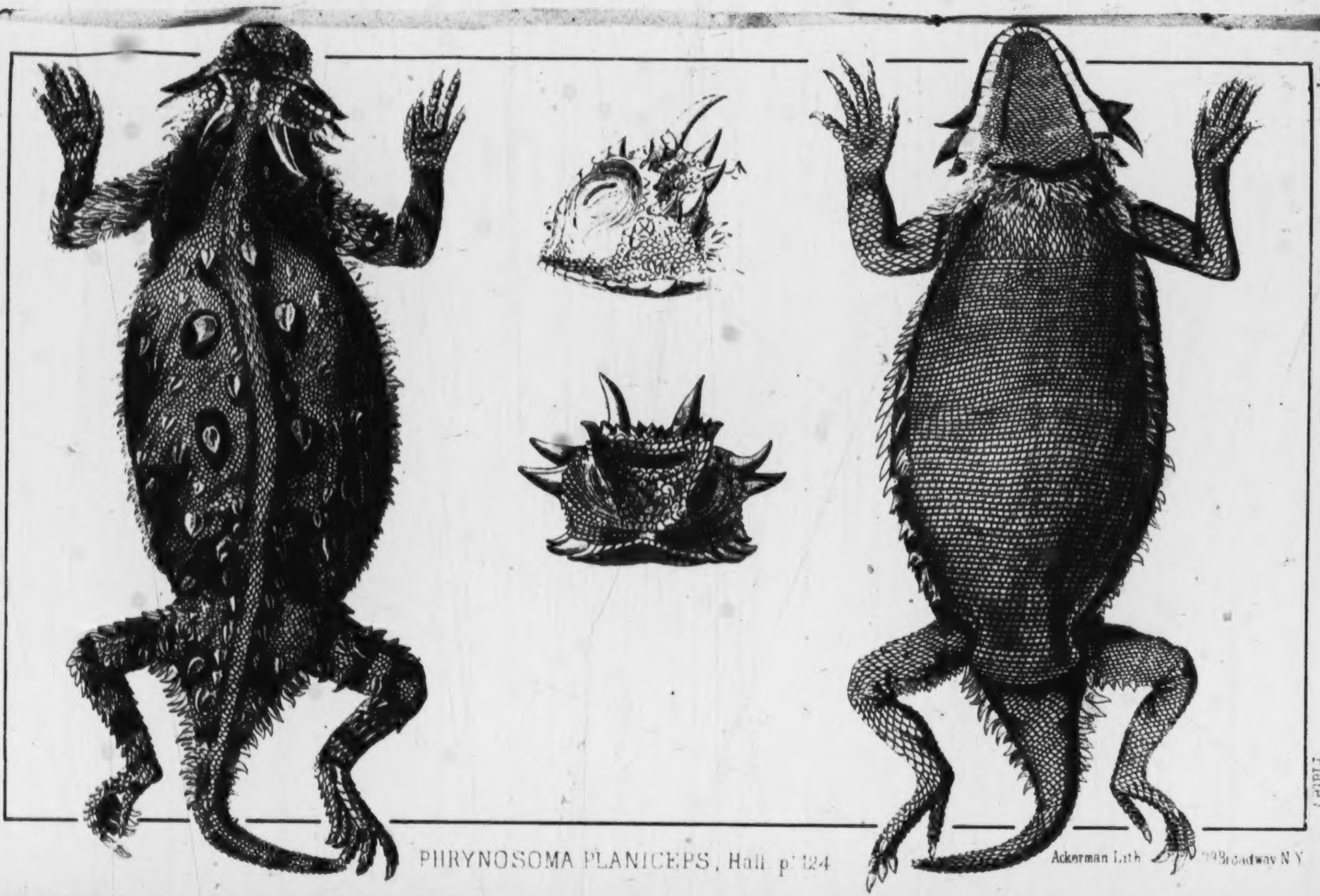


[illegible]

CROTAPHYTUS FASCIATUS
[HALL.] p 115

Ackerman Lith. 379 Broadway N.Y.



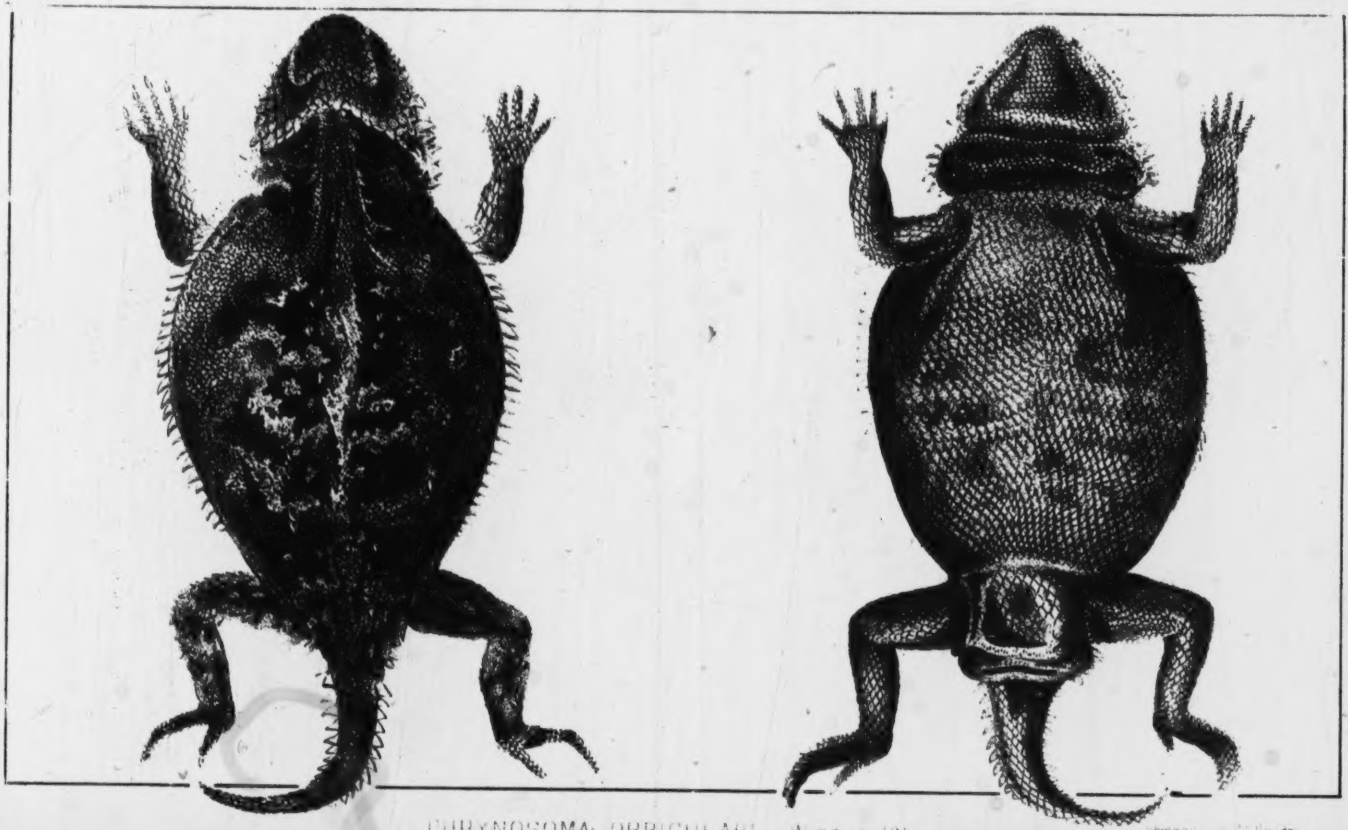


PHRYNOSOMA PLANICEPS, Hall p. 124

Ackerman Lith 379 Broadway N Y

Reptile

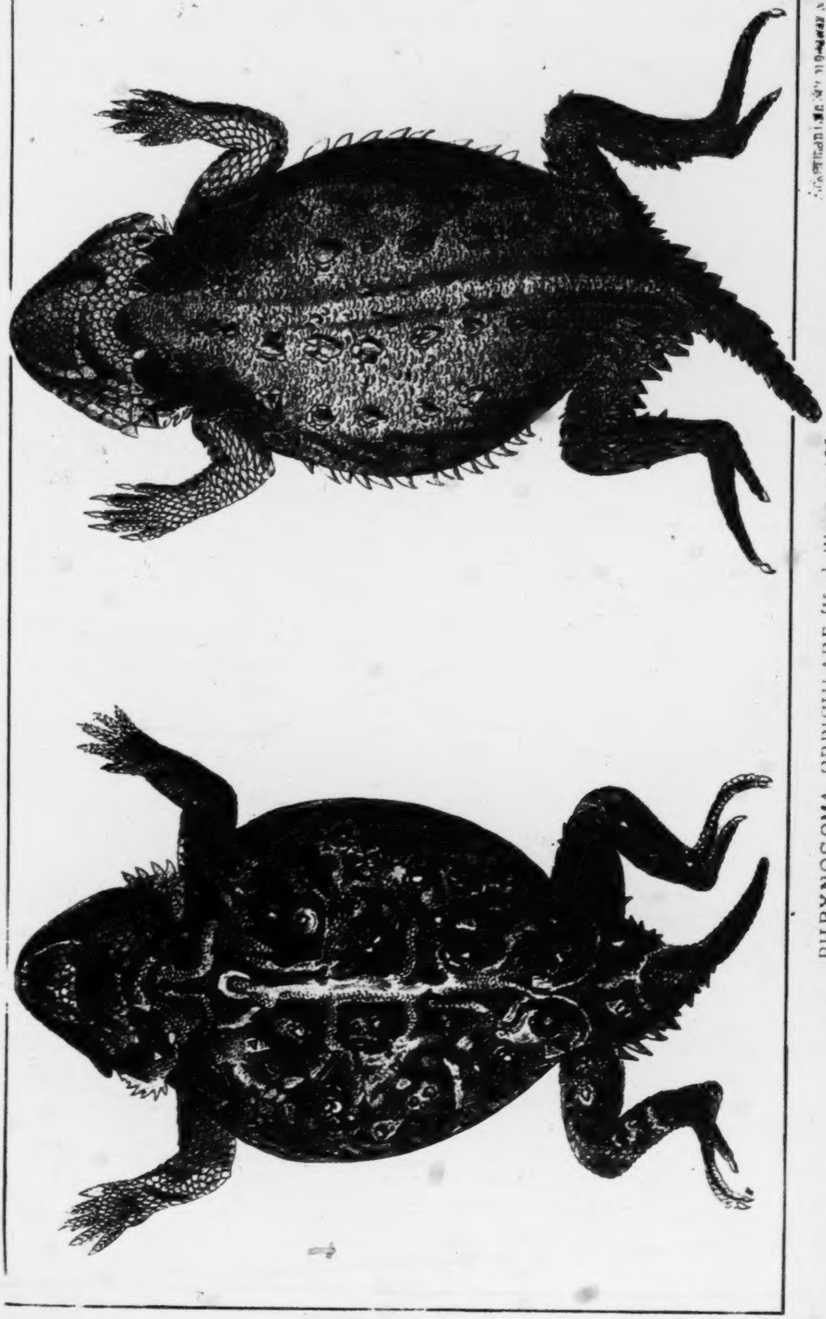
Plate 6



PHRYNOSOMA ORBICULARE, Wieg. p. 125

Ackerman

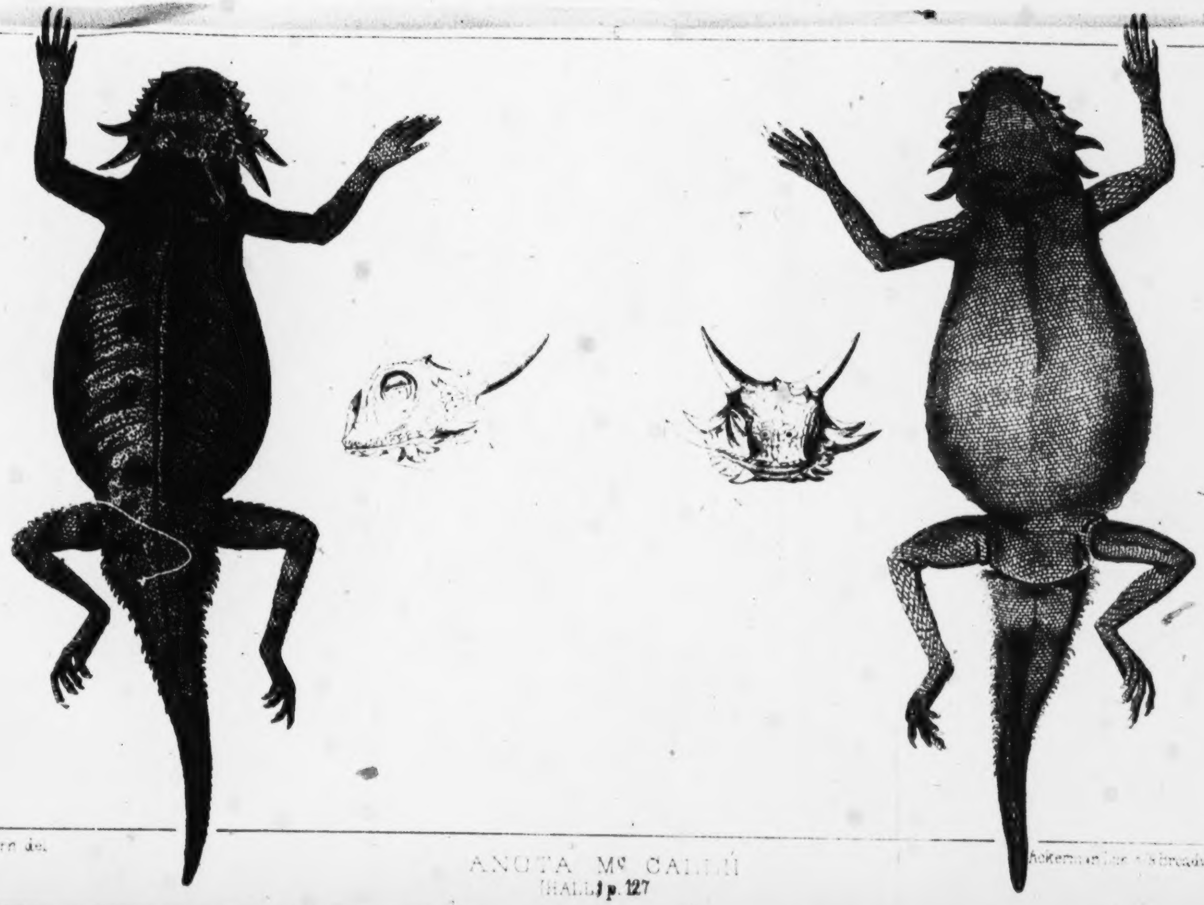
b



PHRYNOSOMA ORBICULARE [Var] Wieg. p 126

[illegible]

3



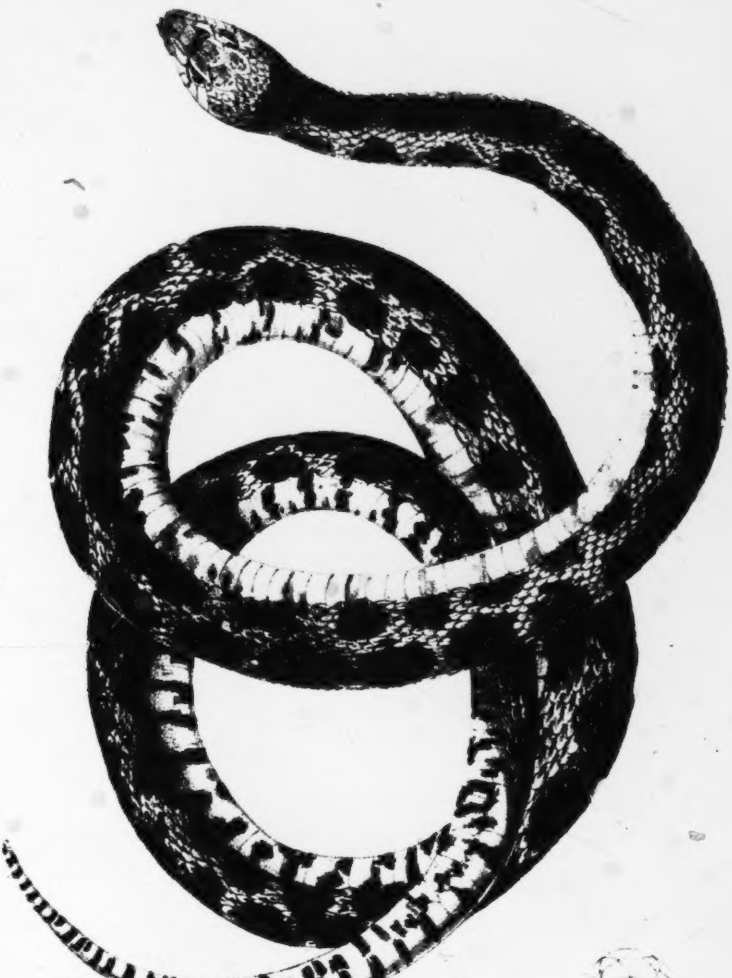
[illegible] Kern del.

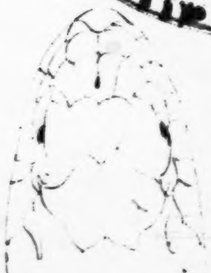
Ackerman Lith [illegible] Broadway

ANOTA M^c CALLII

(HALL) p. 127

Pl 10.

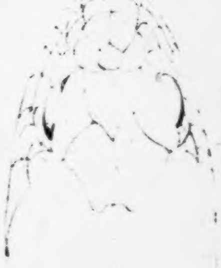




1

Fig 1 Represents an enlarged view of the above Snake

Fig 2 Represents a variation of the plates of the head

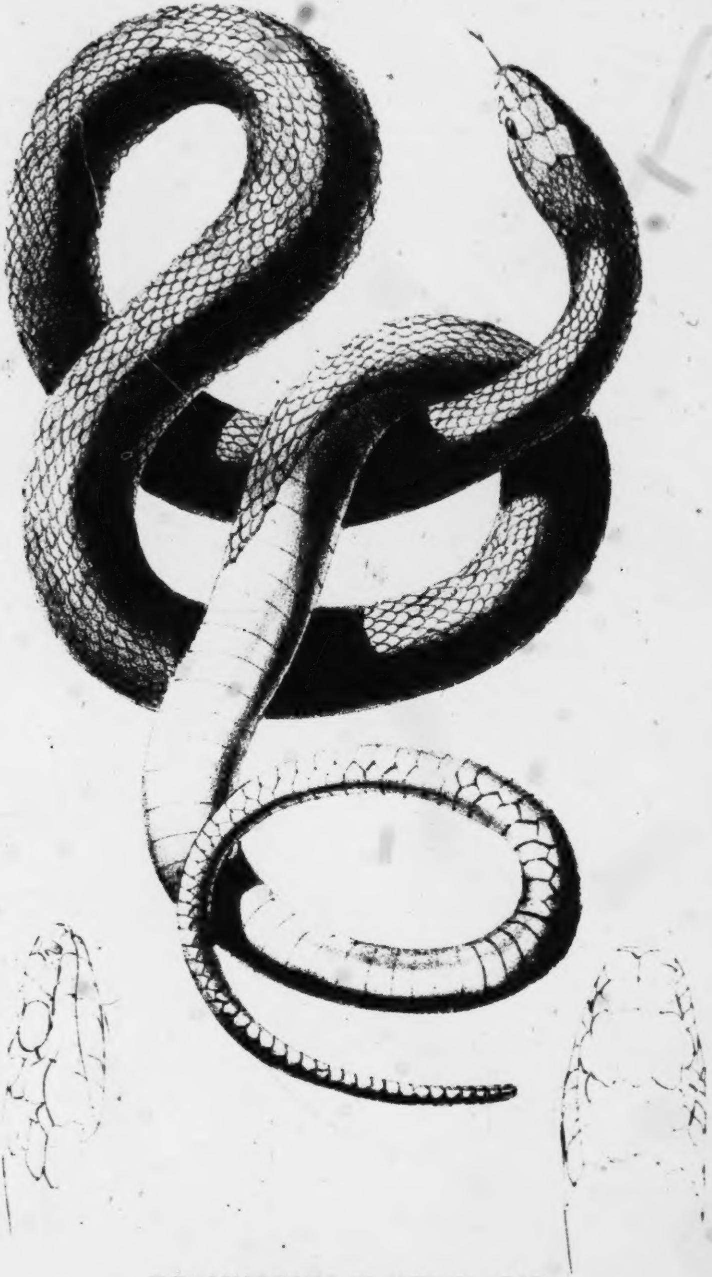


2

PITYOPHIS AFFINIS
(HALLOWELL)

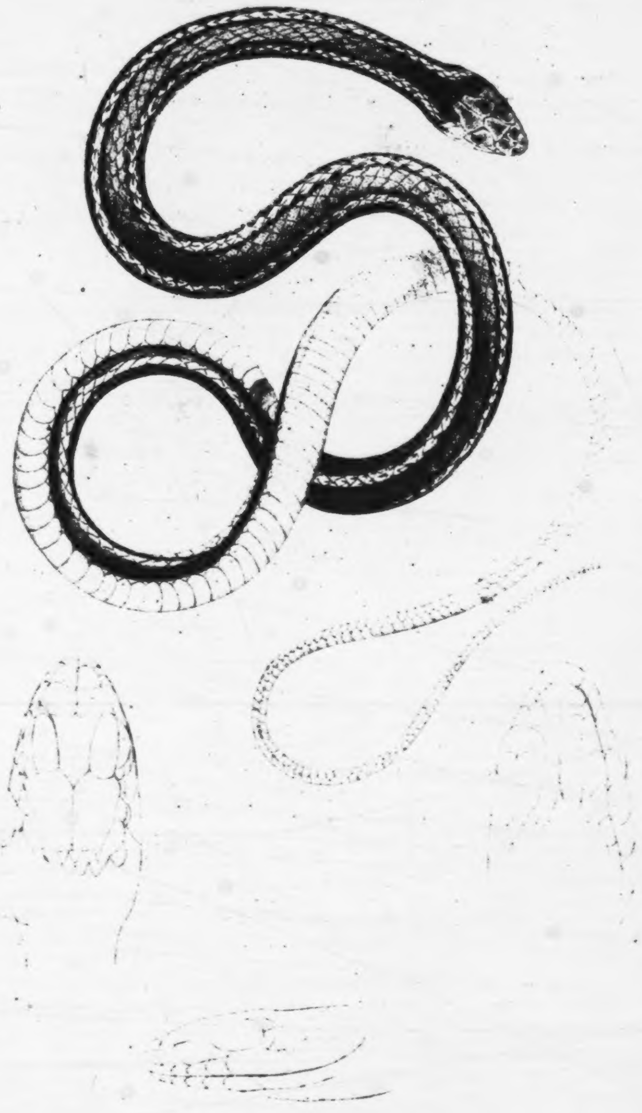
Ackerman Lith 379 Broadway NY

Pl.11.



PSAMMOPHIS FLAVIGULARIS.
(HALLOWELL.)

Ackerman lith 379 Broadway N.Y.



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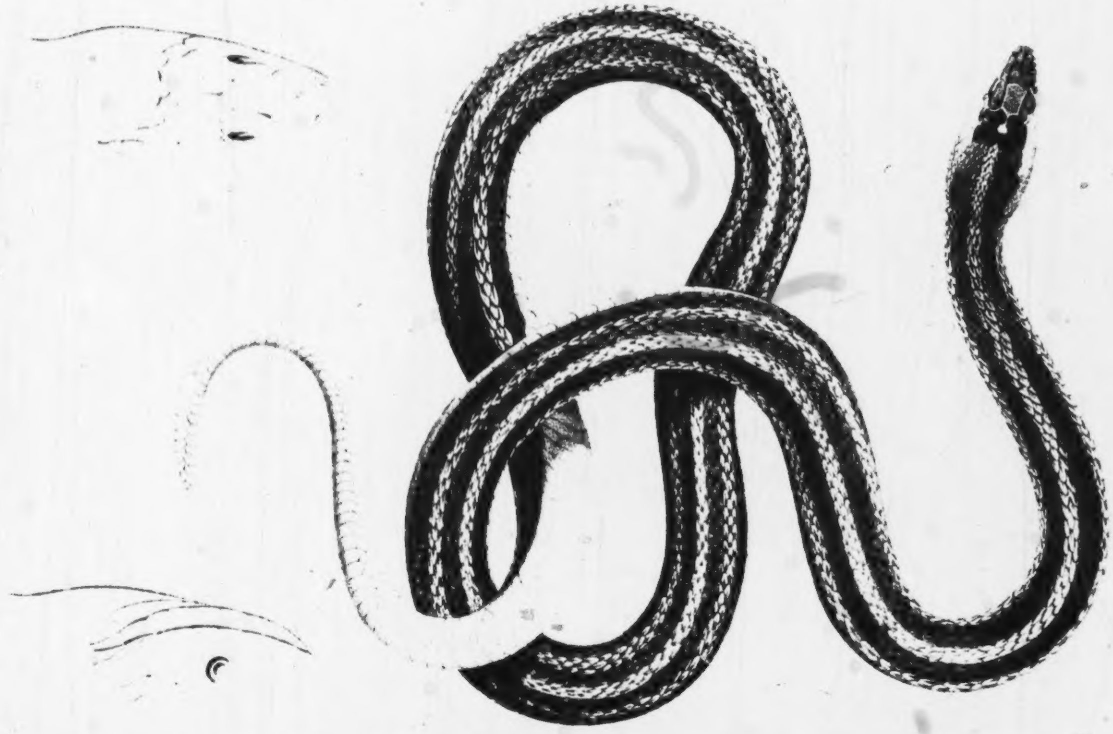
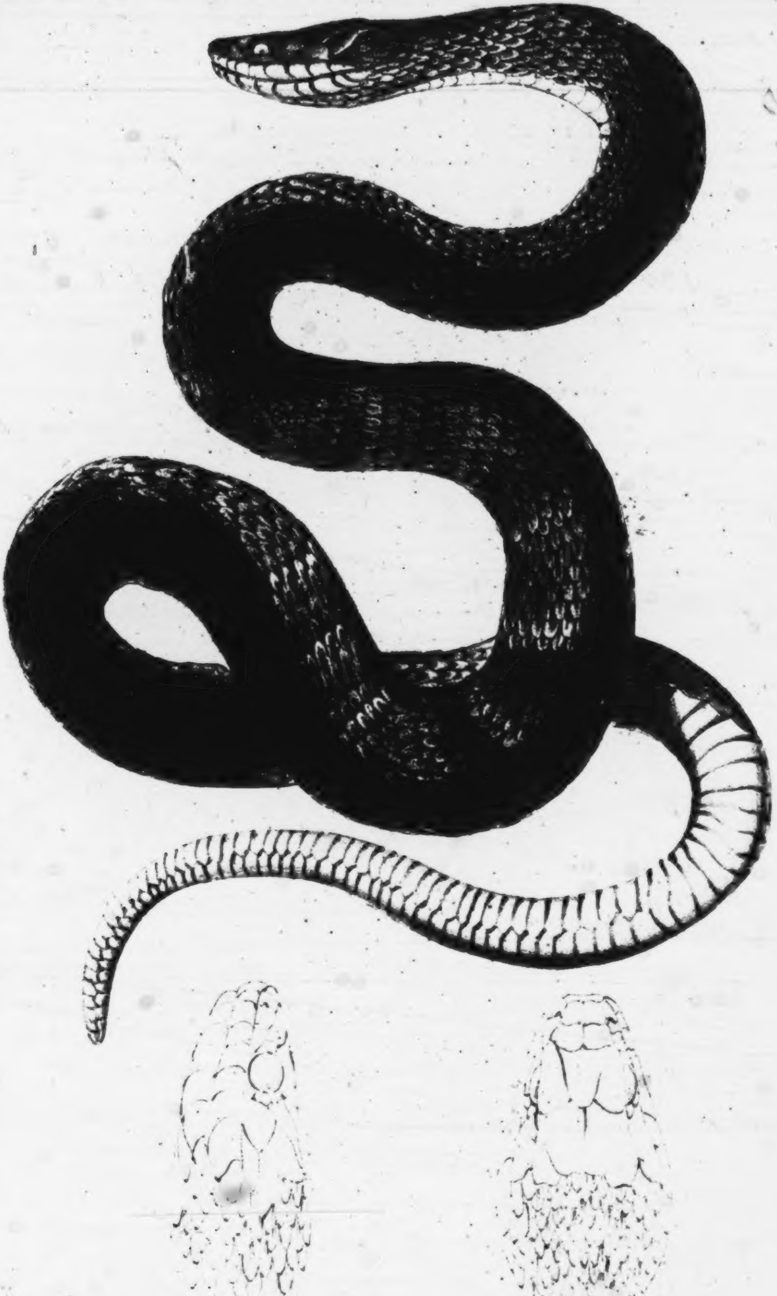
LEPTOPHIS TÆNIATA Hal.



TROPIDONOTUS PROXIMUS Say p 134

Ackerman Lith 379 Broadway N.Y.

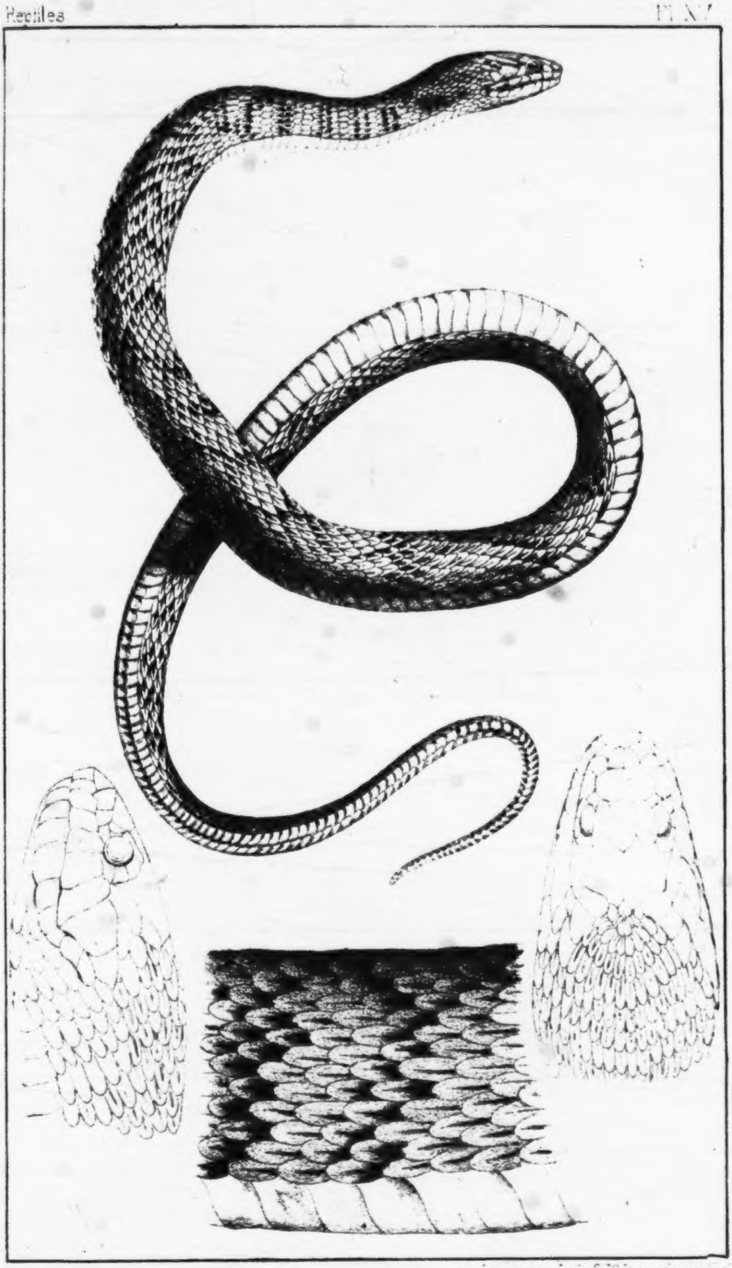
Pl 14.



TROPIDONOTUS WOODHOUSII.

(HALLOWELL.)

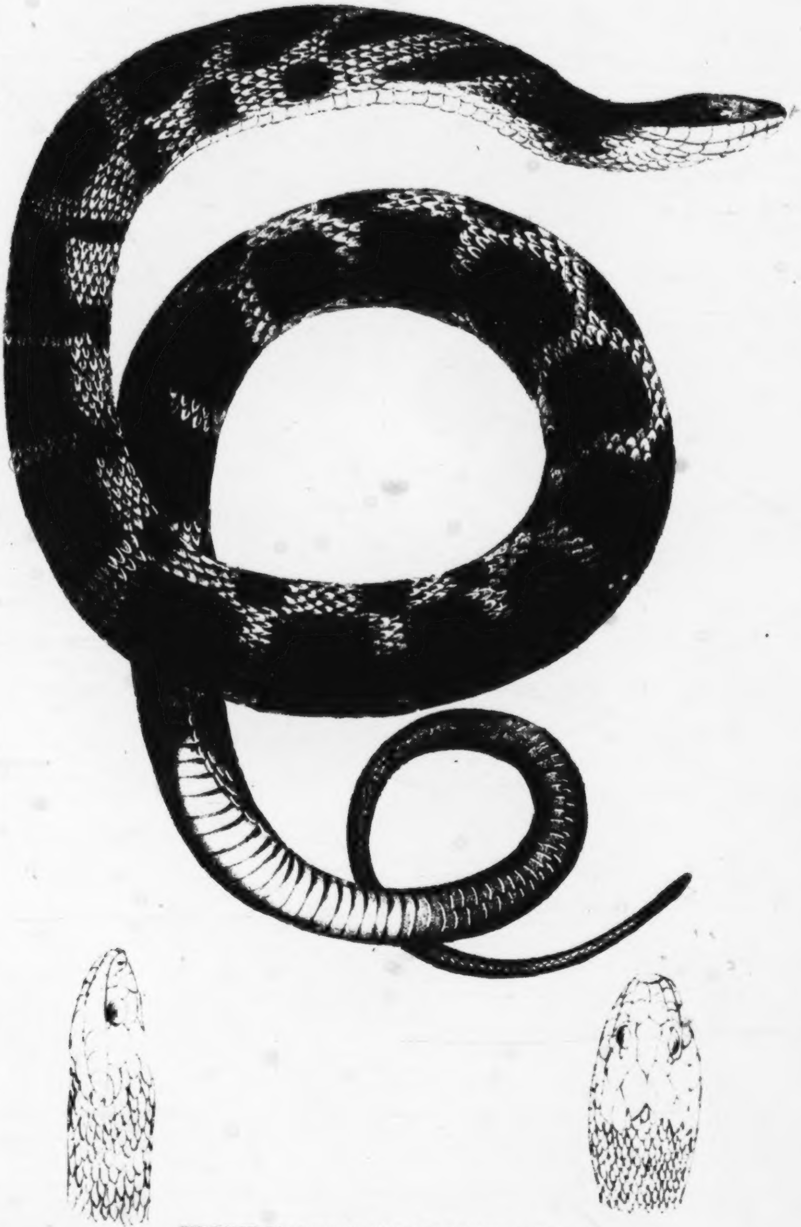
Ackerman Lith 379 Broadway NY



Ackerman Lith 379 Broadway N.Y.

TROPIDONOTUS RHOMBIFER Hall.

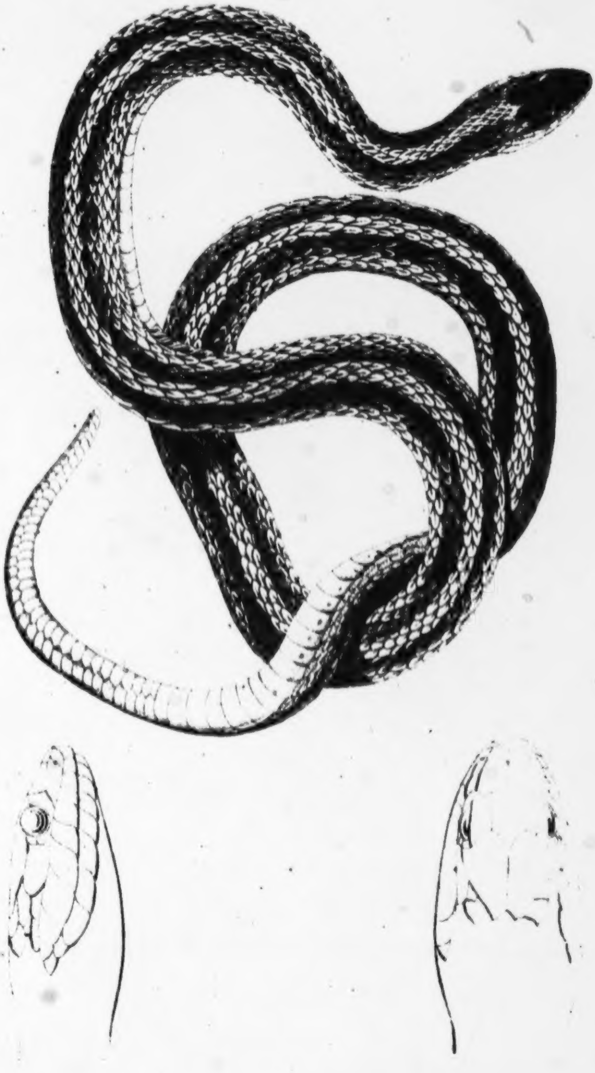
Pl. 16



TROPIDONOTUS TRANSVERSUS

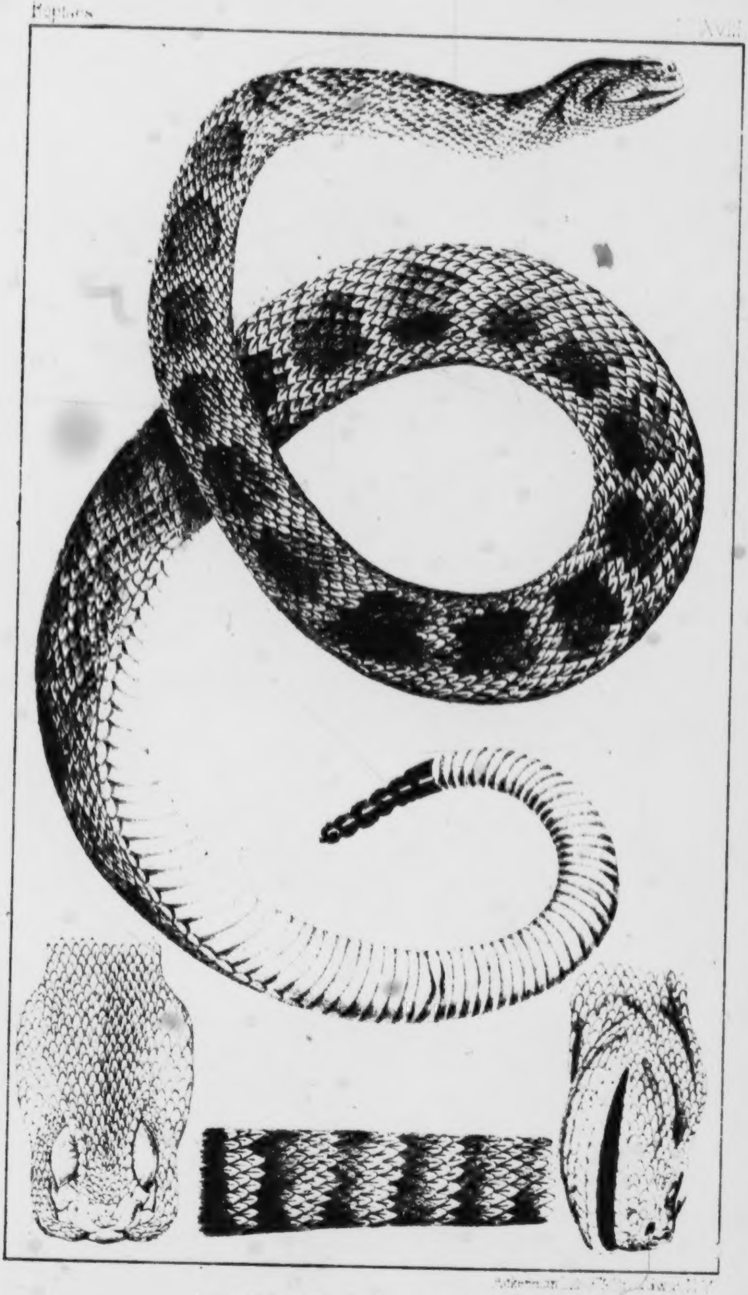
(HALLOWELL.)

Ackerman Lith 379 Broadway N.Y.



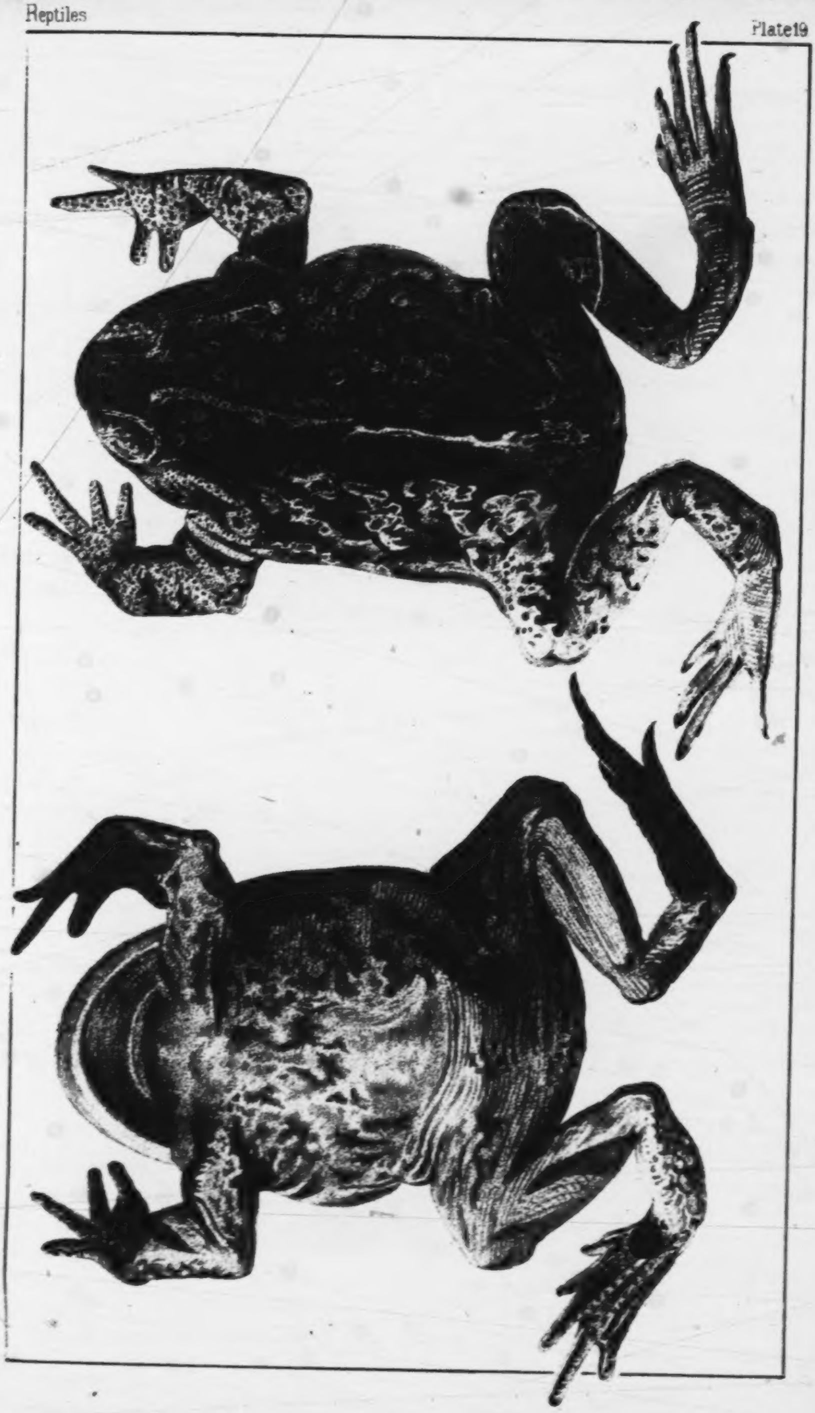
Ackerman lith [illegible]

[illegible] PARIETALIS Say



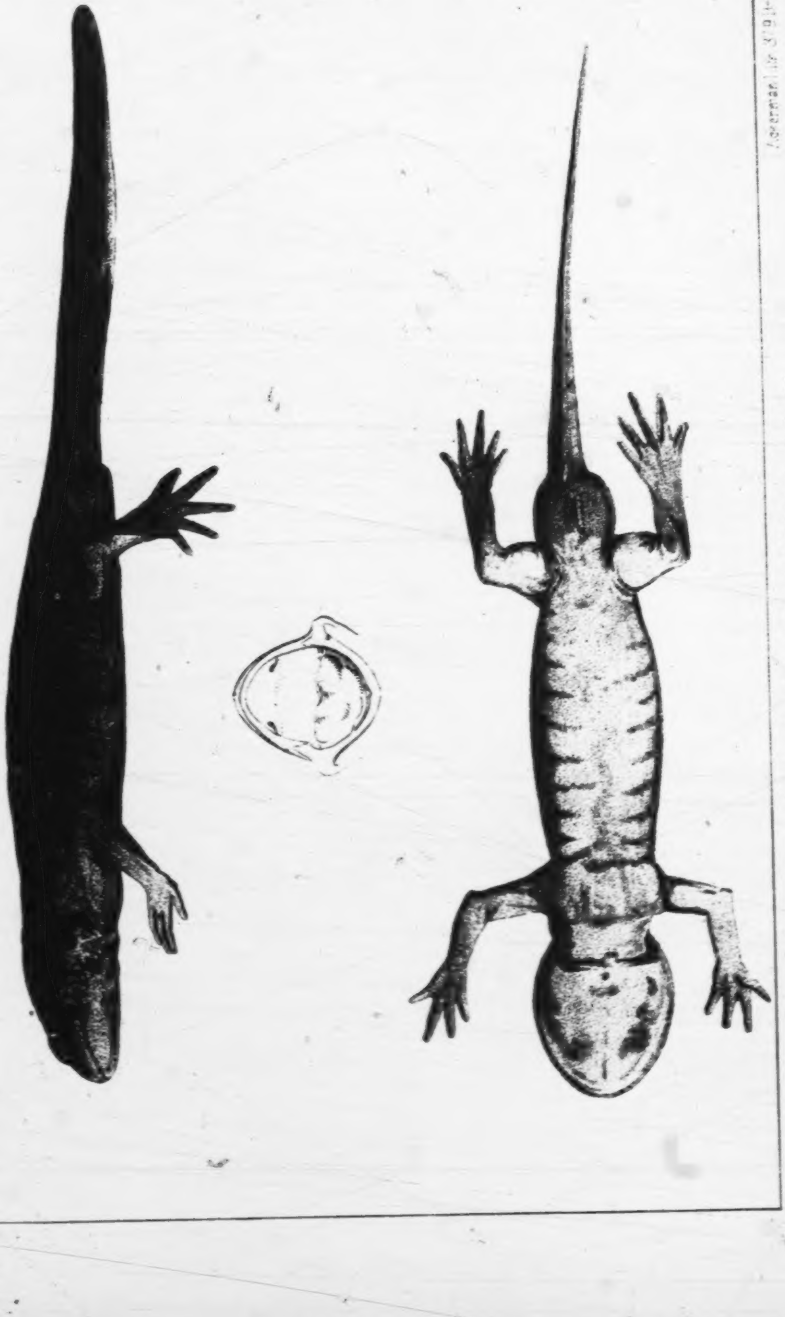
Ackerman Lith. [illegible]

CROTALUS LECONTEI Hall



Ackerman Lith 379 Broadway N.Y.

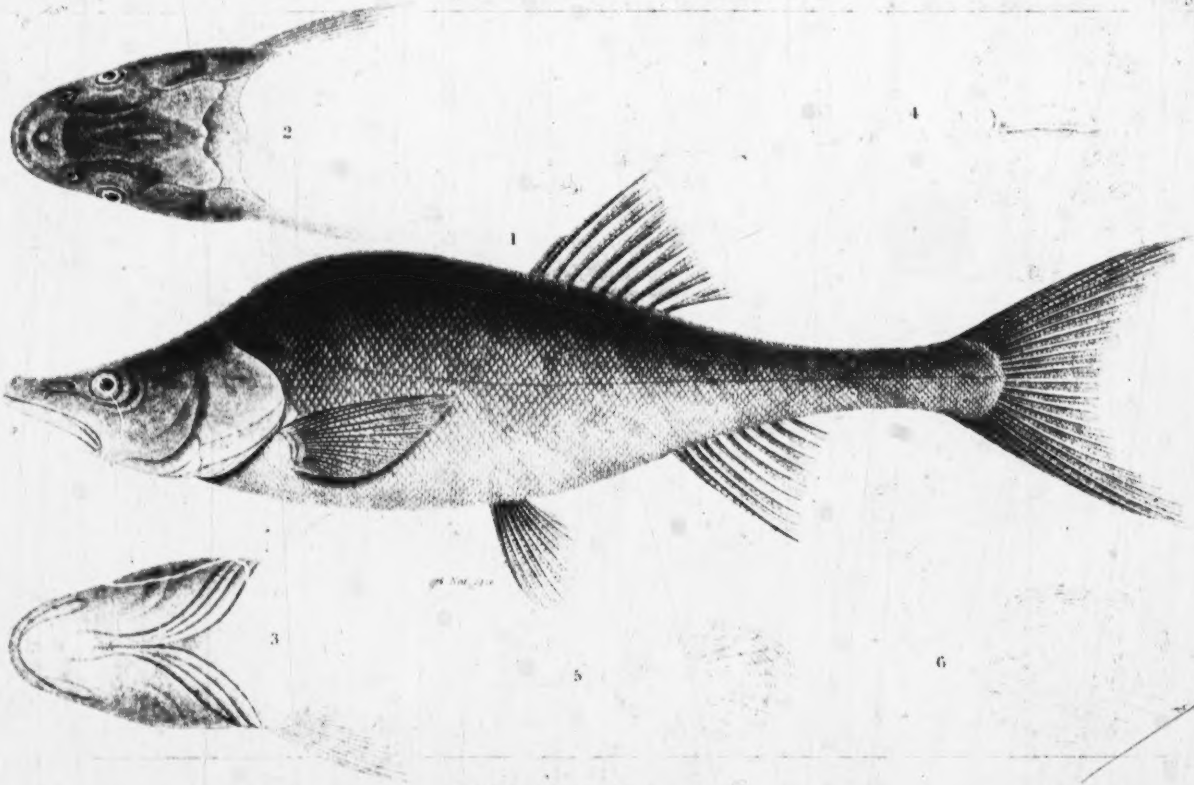
BUFO DORSALIS, Hall p 142



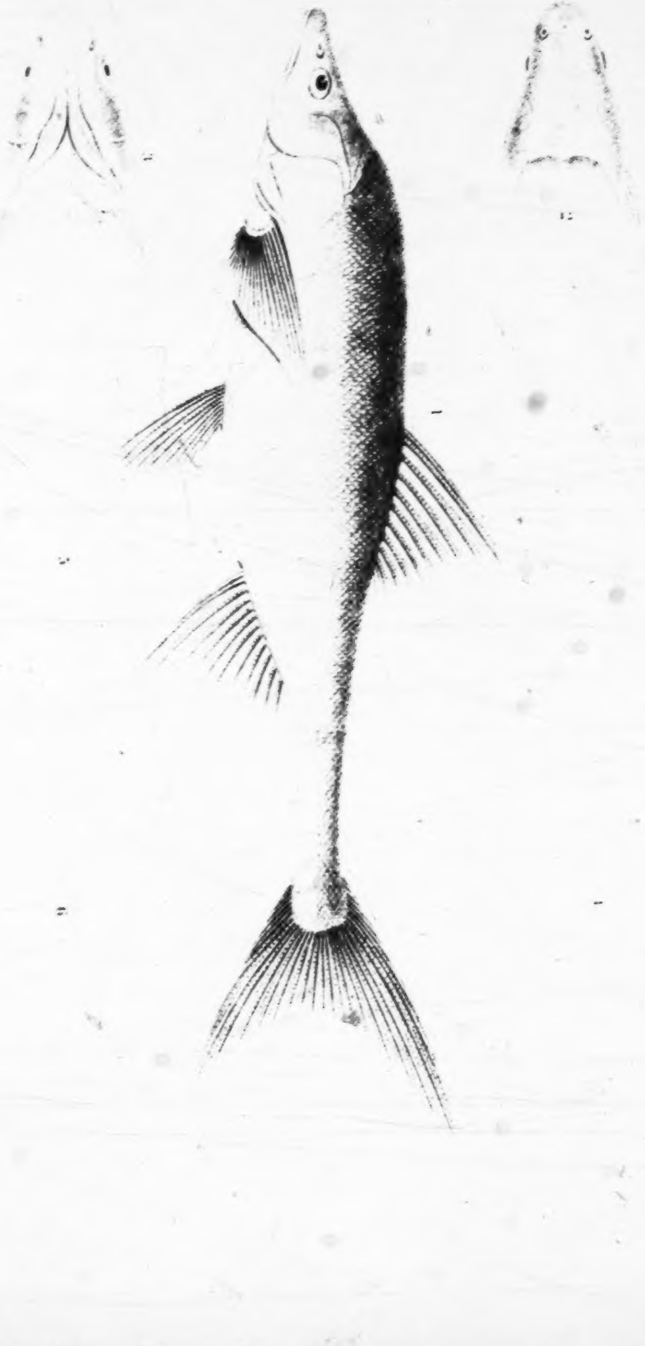
AMBYSTOMA NEBULOSUM (HALL.)

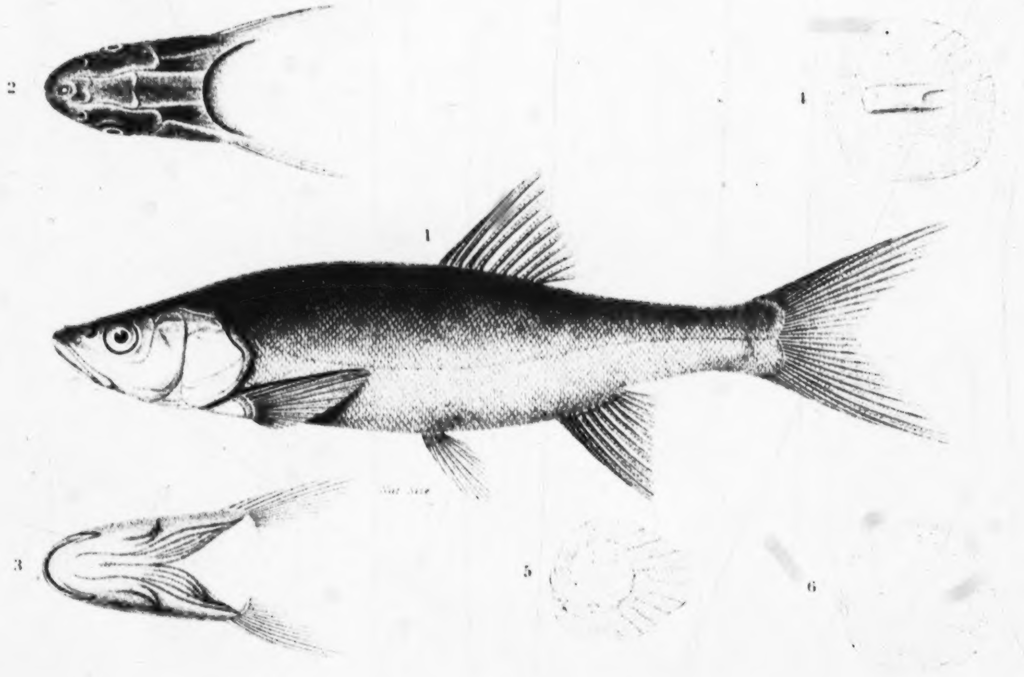
R.H.Kern del.

Ackerman lith 379 Broadway, N.Y.



GILA ROBUSTA, B. & G.

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4
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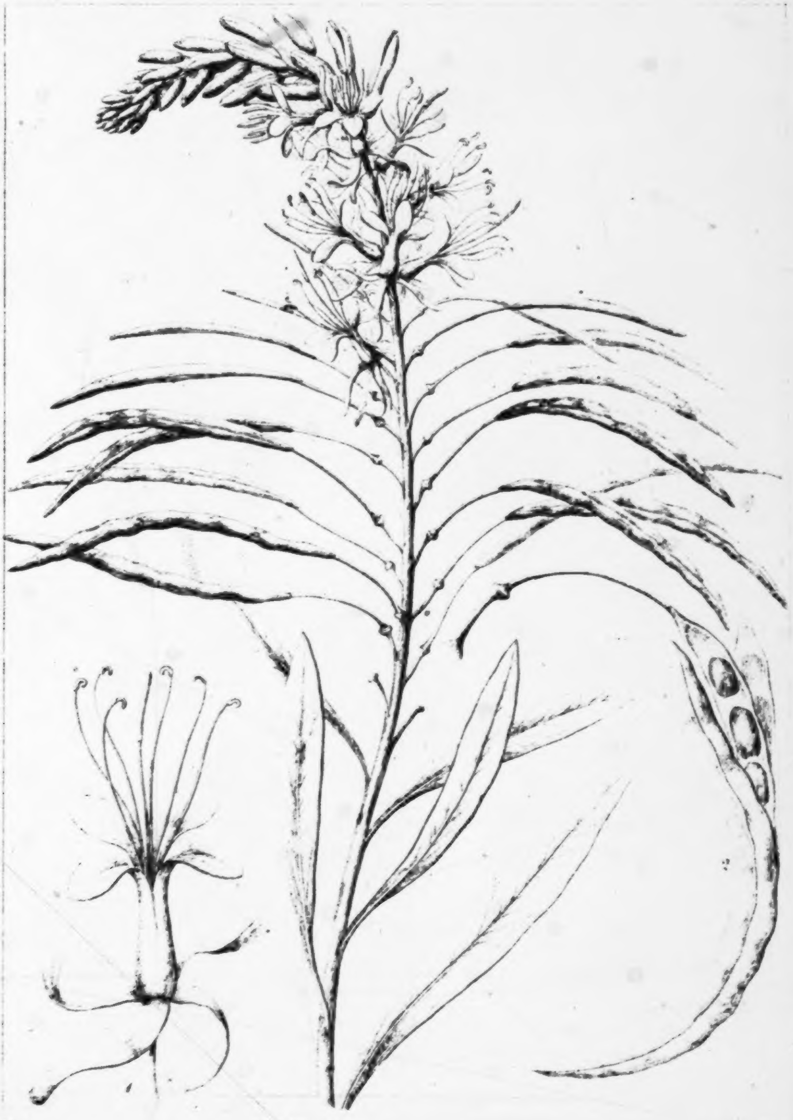
6
Nat. Size

GILA GRACILIS, B. & G.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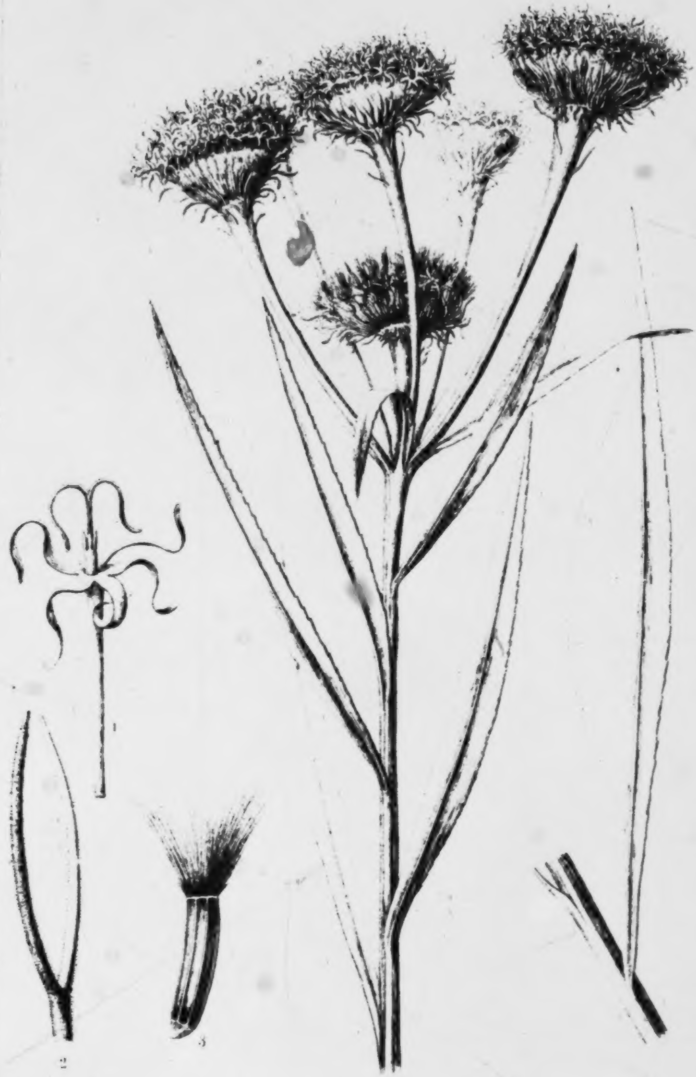
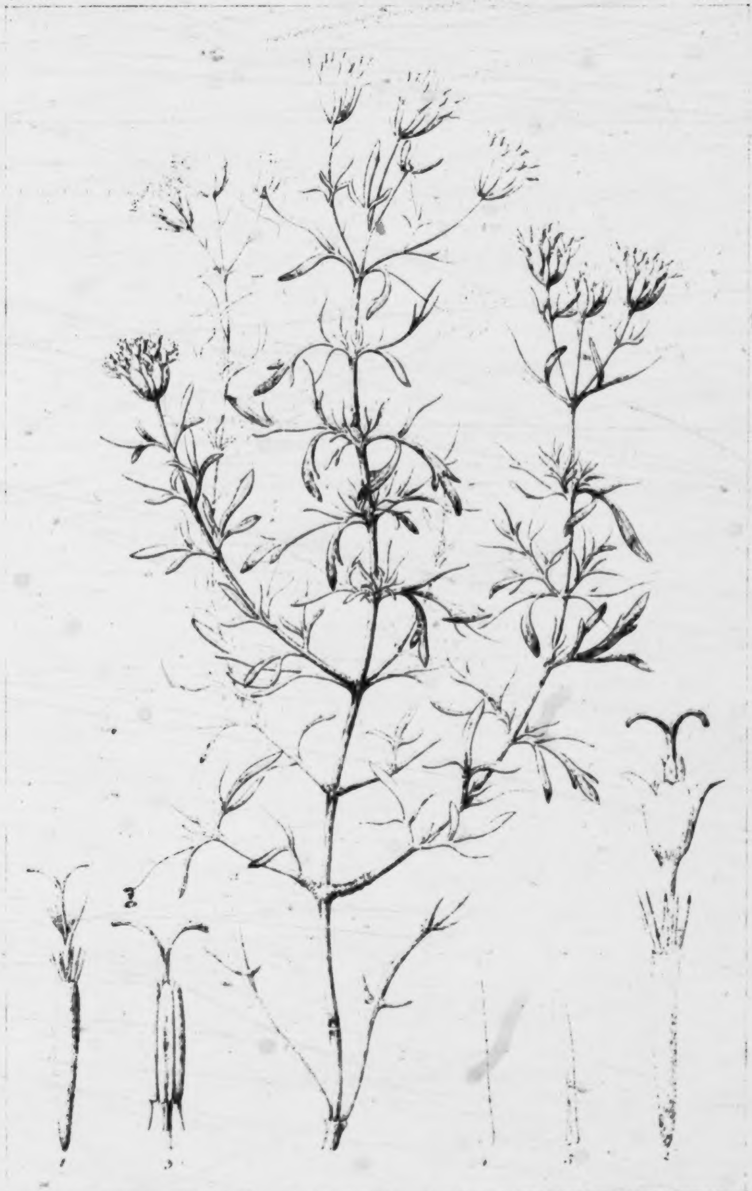
[illegible]



Ackerman Lith. [illegible] N.Y.

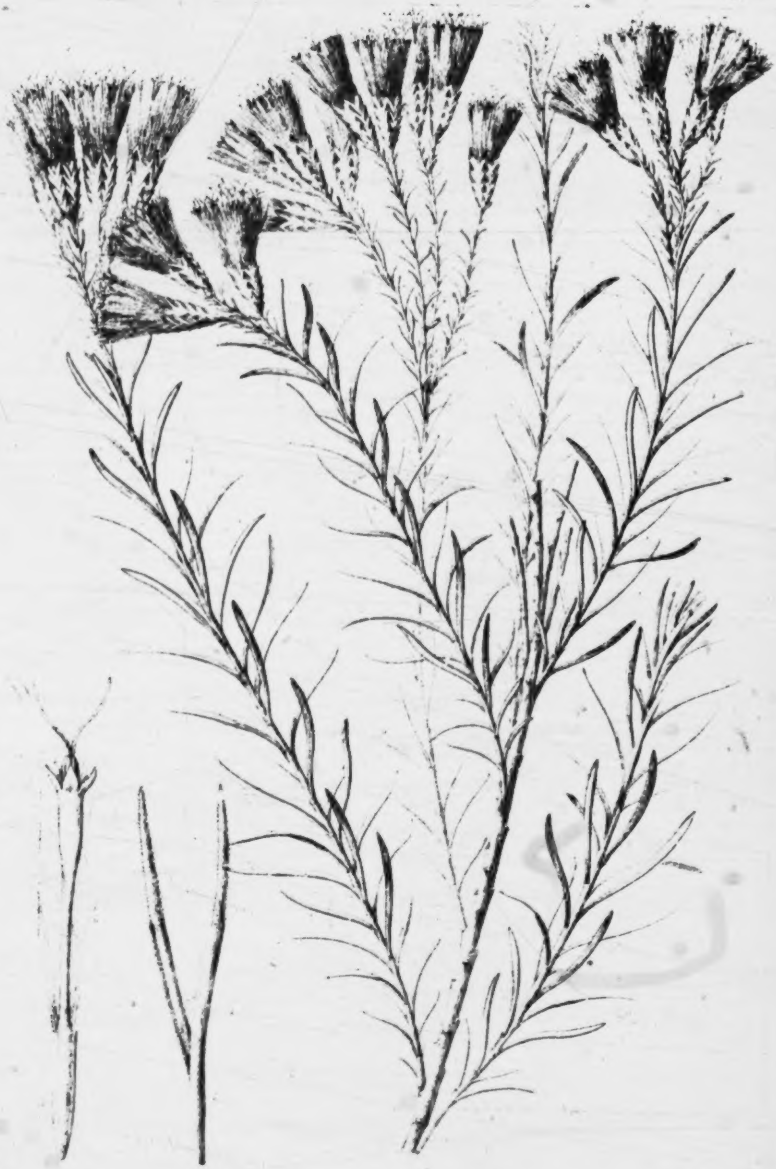
VERNONIA ARKANSANA.

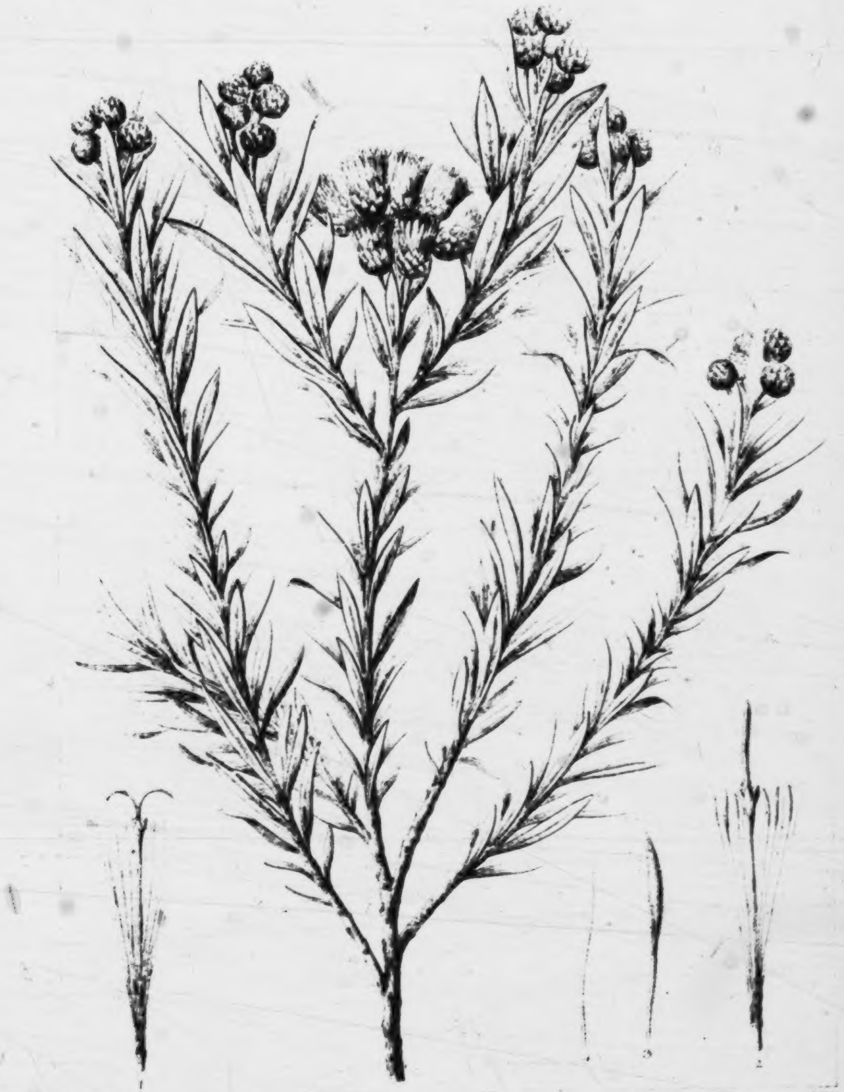


Ackerman Lith. 379 Broadway N.Y.

BAHIA OPPOSITIFOLIA.

6

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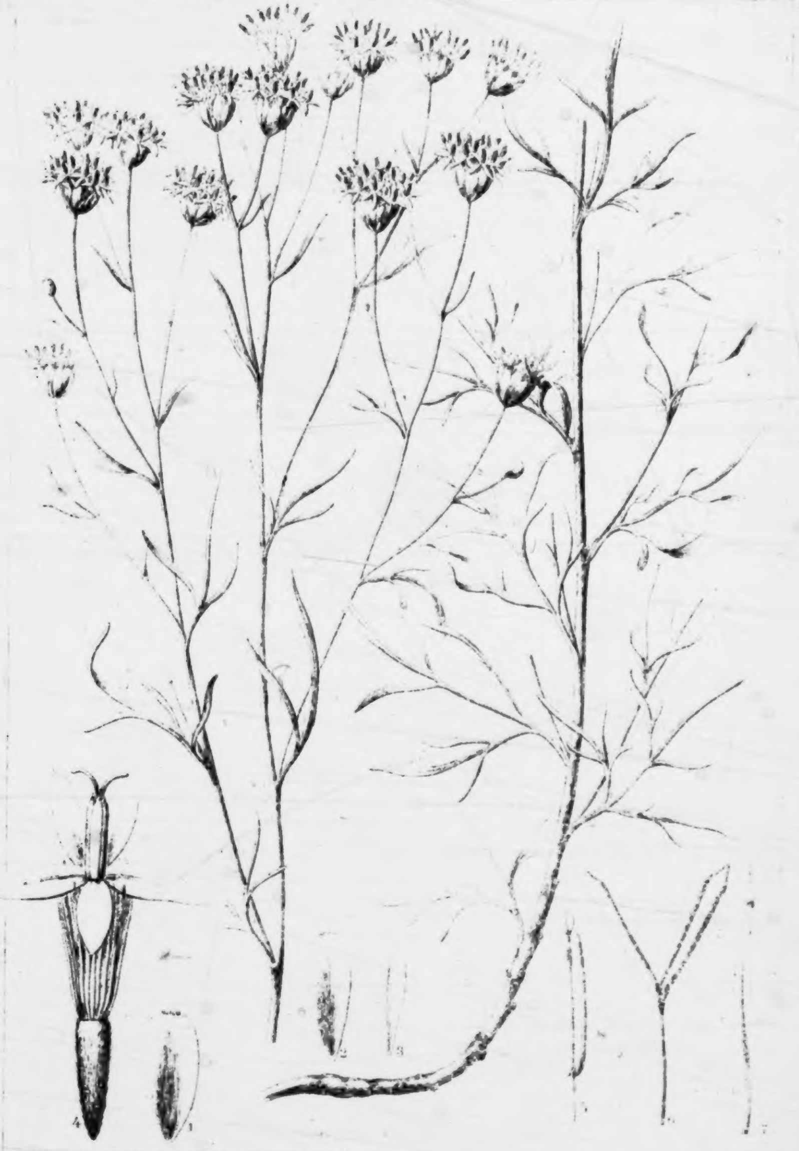
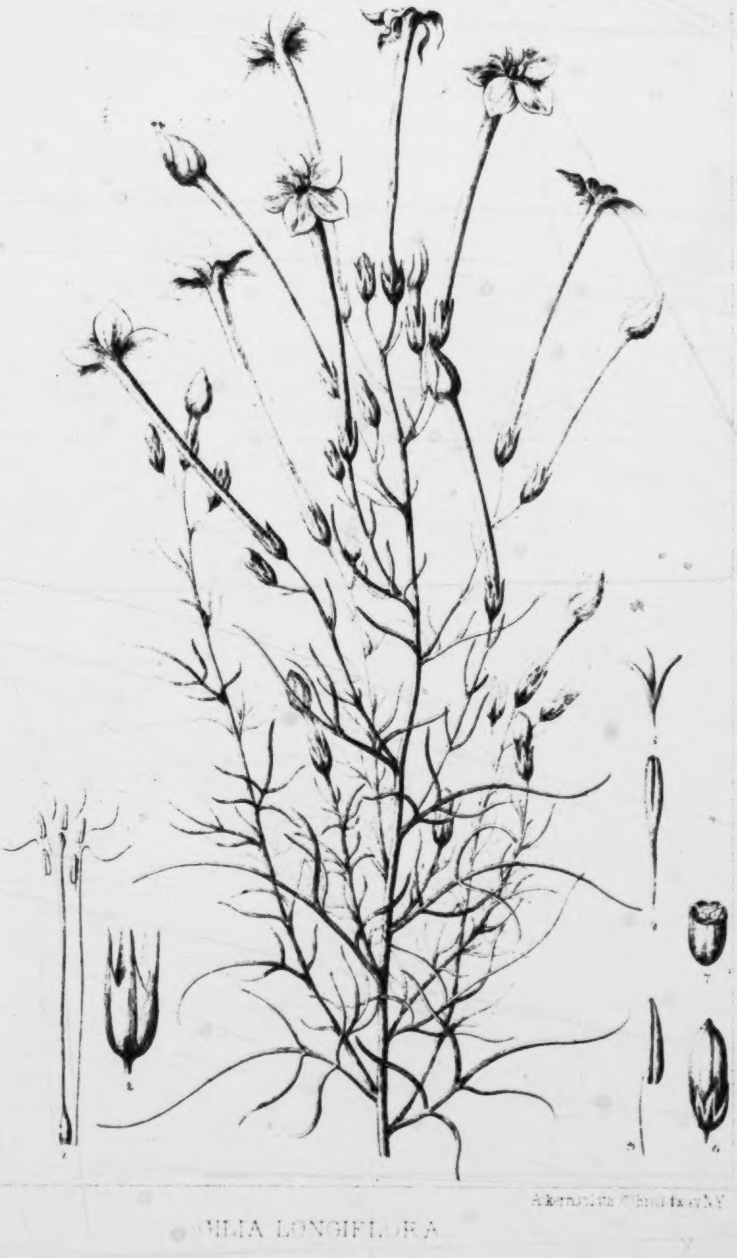
3
2

[illegible]

[illegible]

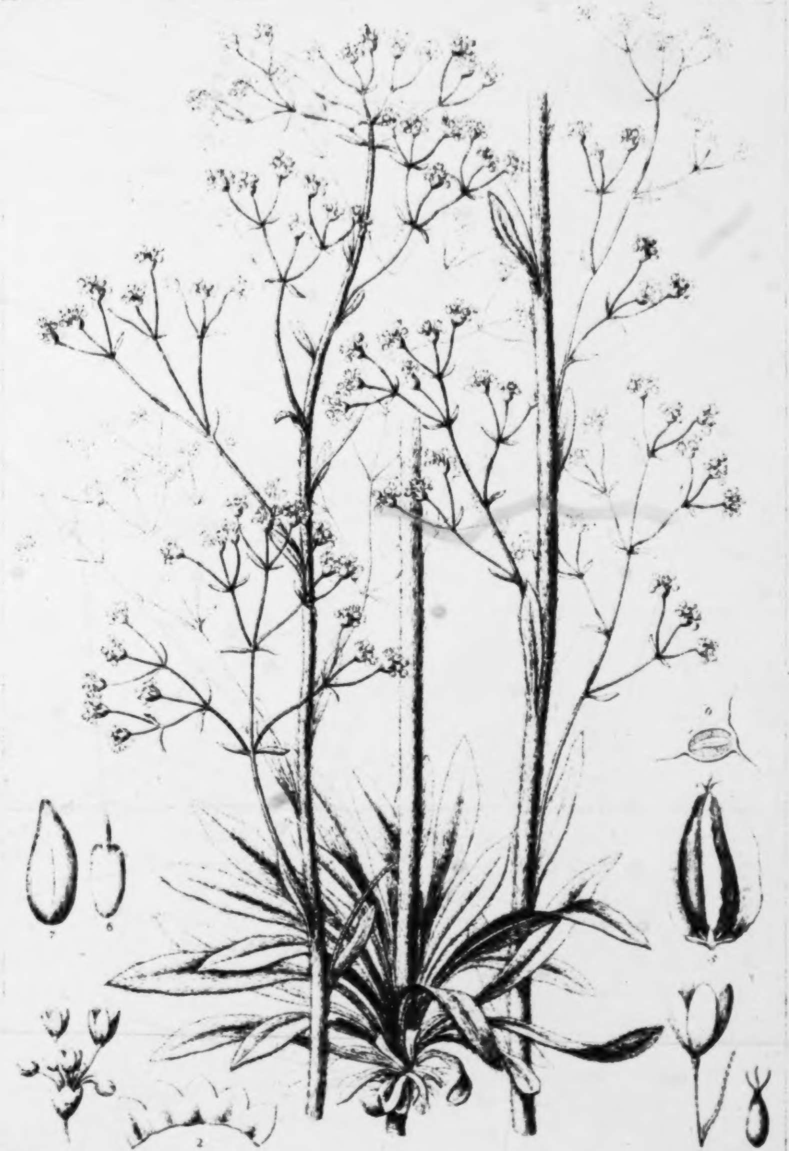


HYMENOTHRIX WRIGHTII



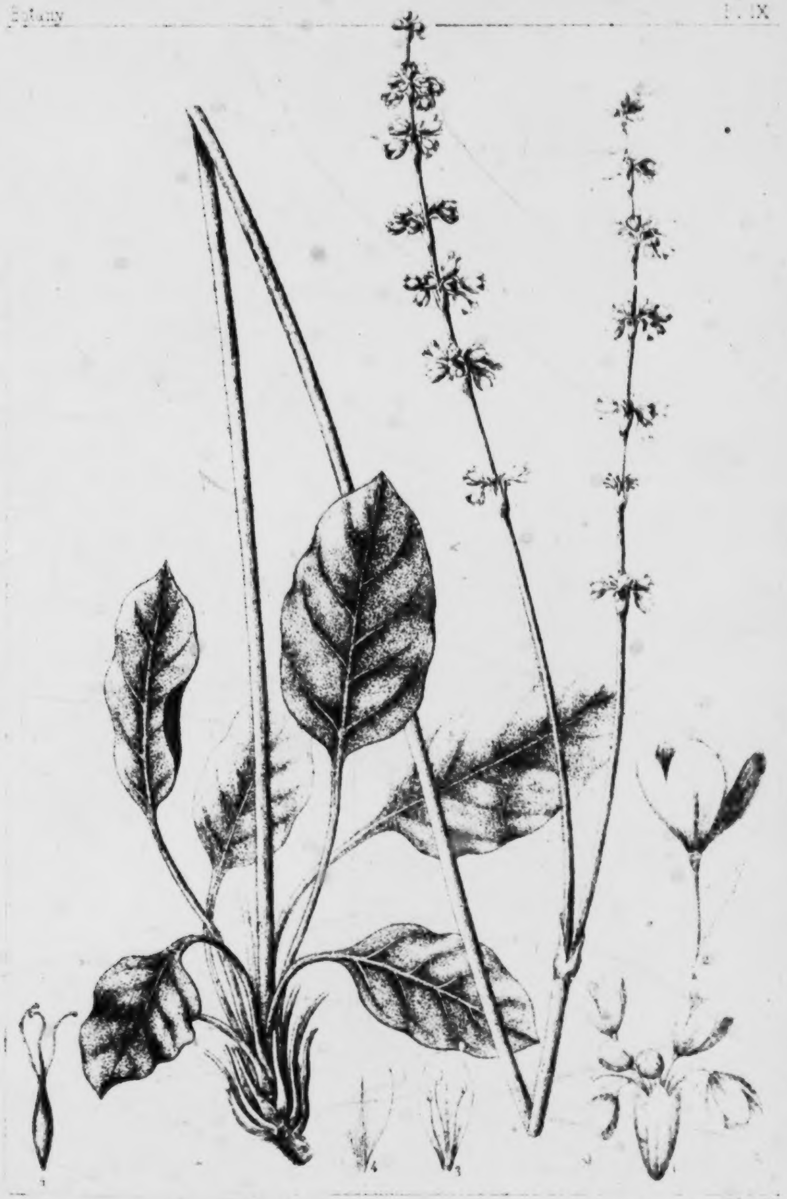
Ackerman Lith. 379 Broadway N.Y.

GILIA LONGIFLORA



Ackerman Lith 379 Broadway N.Y.

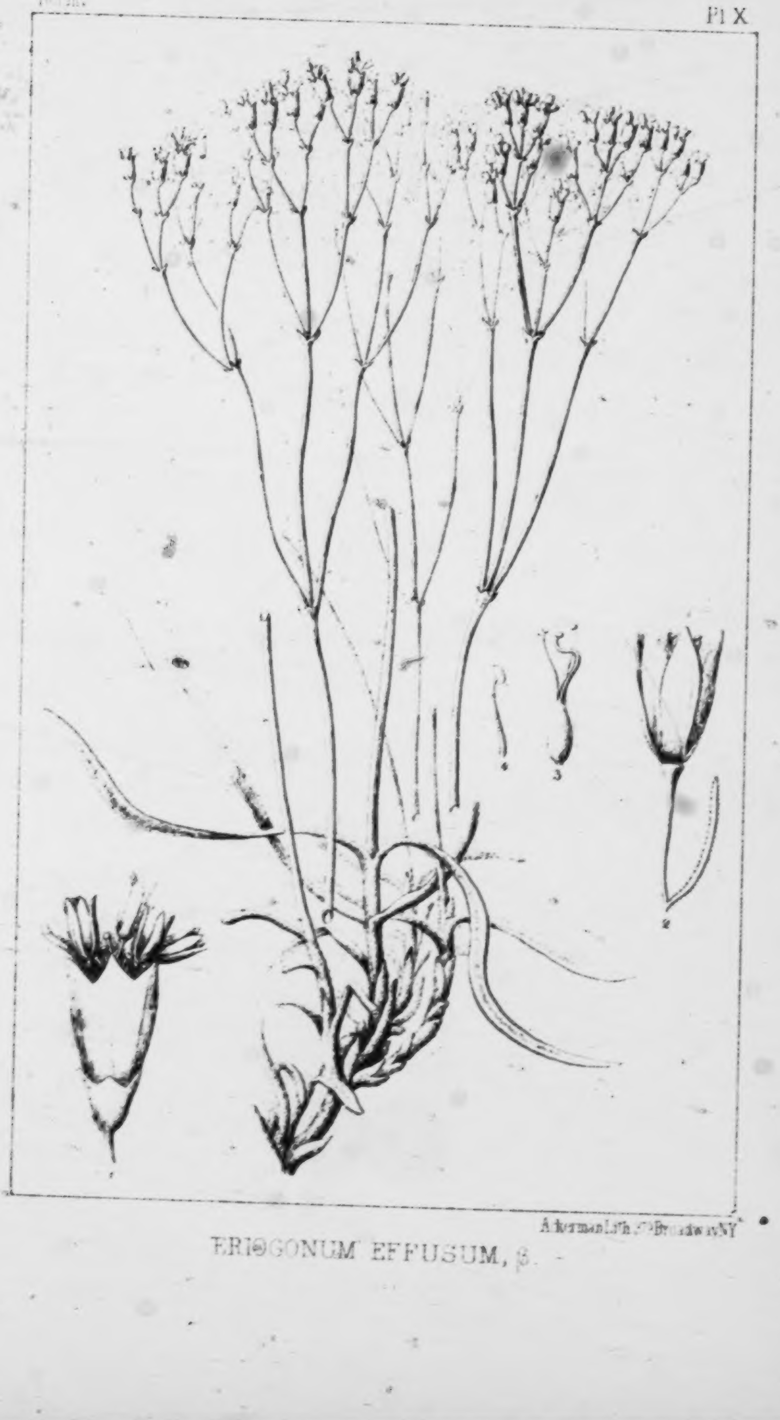
ERIOGONUM ALATUM.



[illegible]

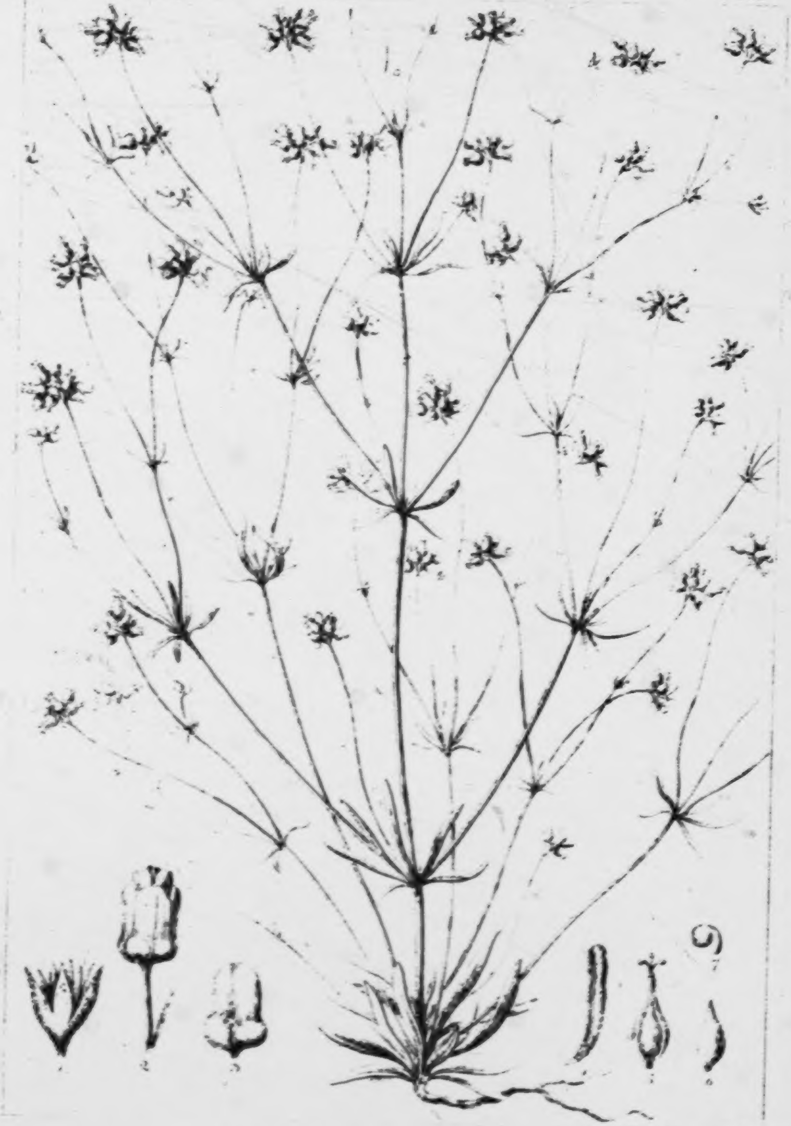
ERIOGONUM ORTHOCLADON

Fel. at.



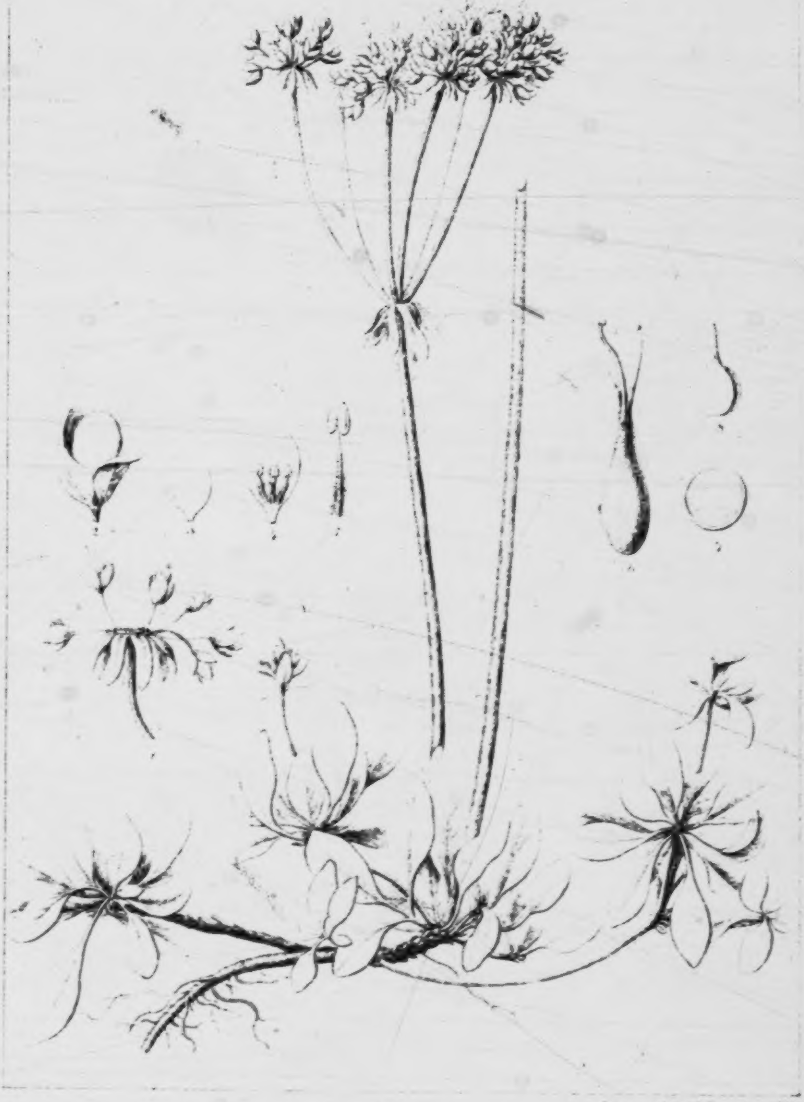
Ackerman Lith 379 Broadway NY

ERIOGONUM EFFUSUM, β.



Ackerman's Lith. 379 Broadway N.Y.

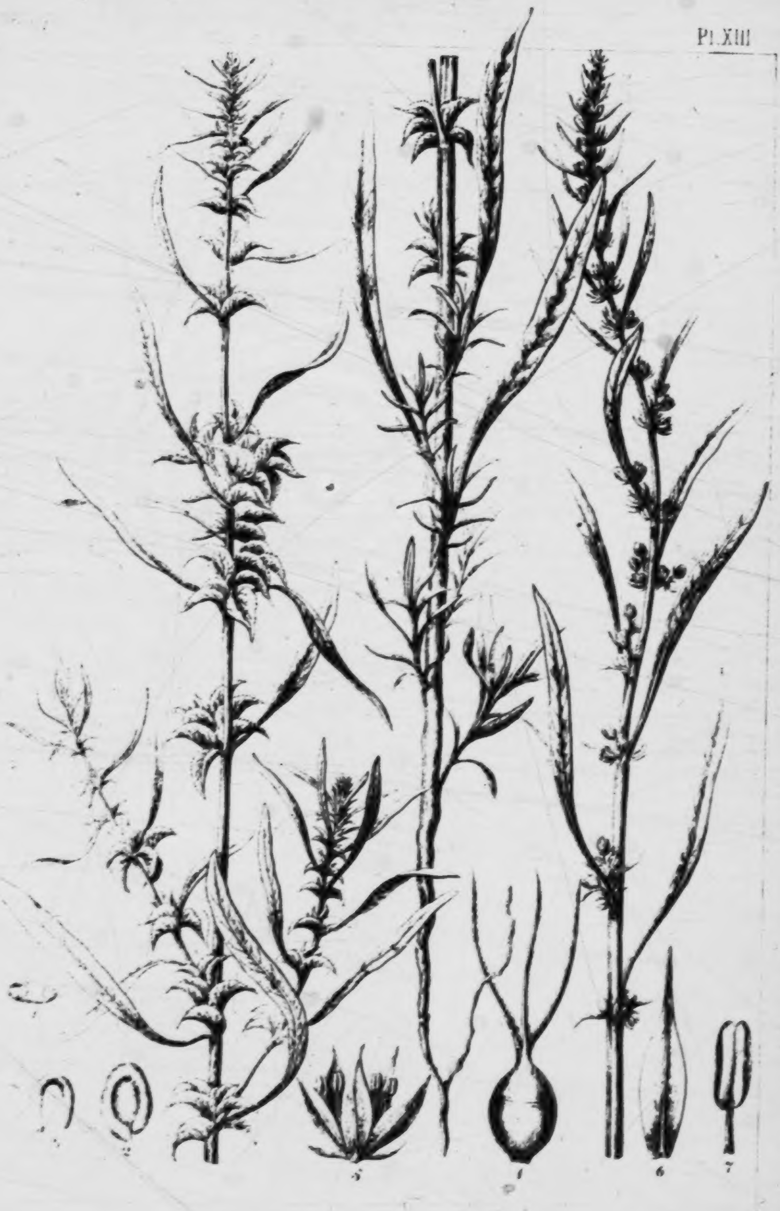
ERIOGONUM PHARNACEOIDES



[illegible]

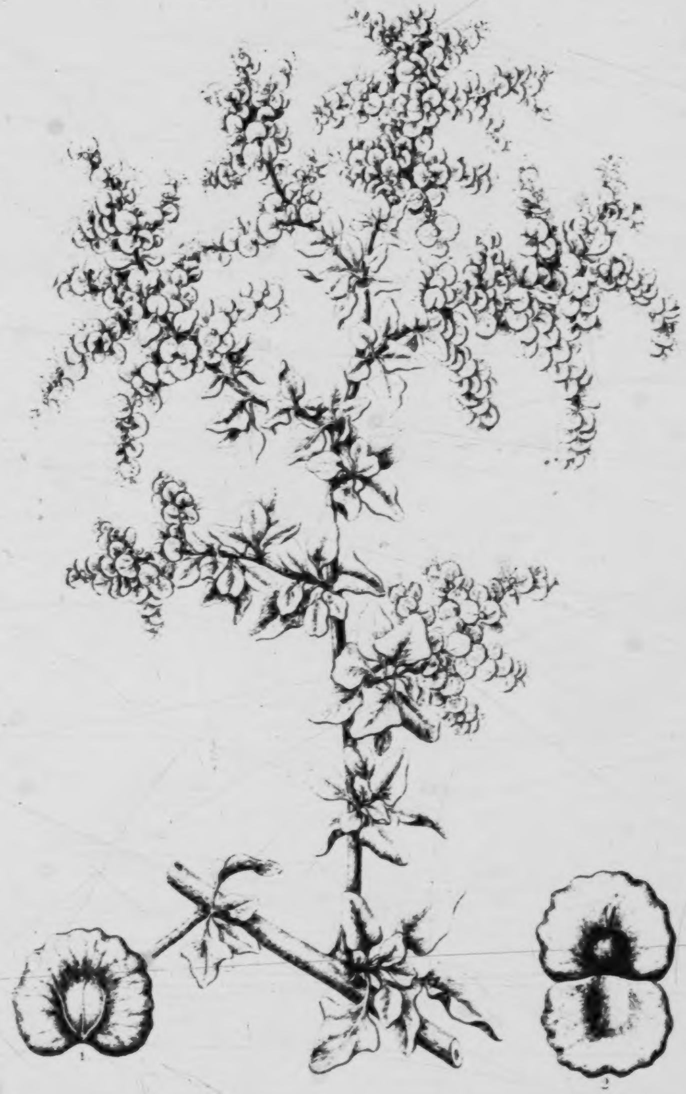
ERIOGONUM UMBELLATUM

Pl. XIII



Ackerman Lith. 379 Broadway N.Y.

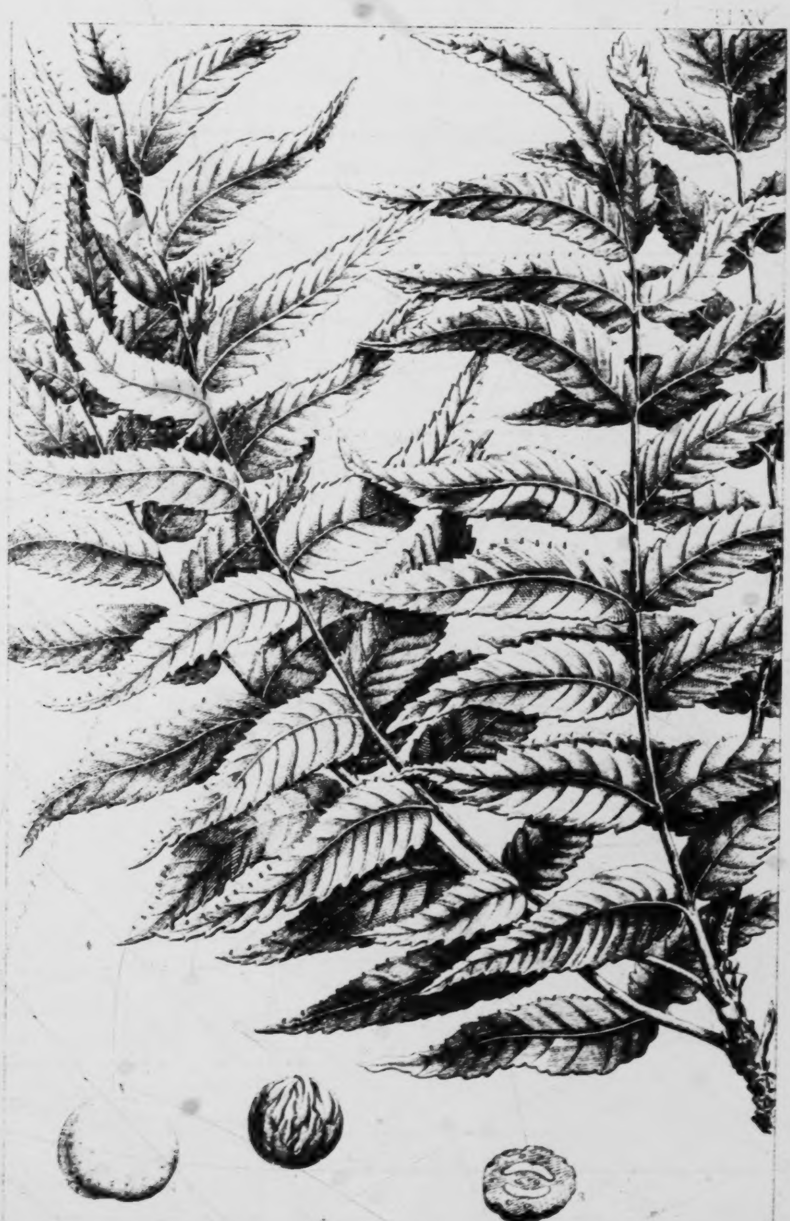
ACANTHOCHITON WRIGHTII



Ackermann Lith. 379 Broadway N.Y.

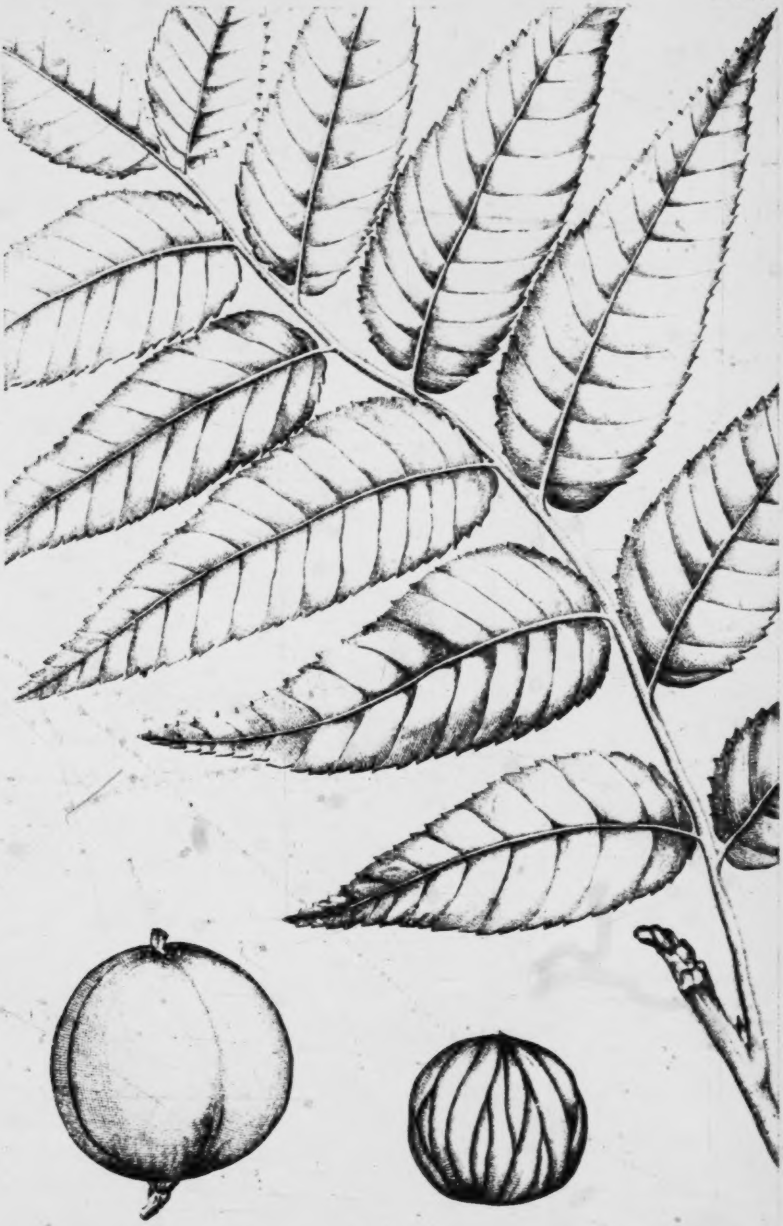
OBIONE LENTIFORMIS.

LXV



Ackerman Lith. 379 Broadway N.Y.

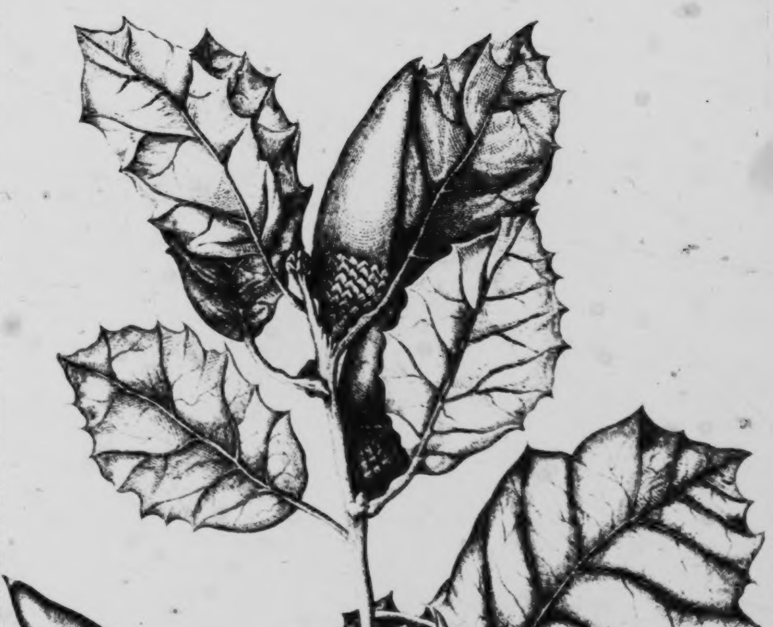
JUGLANS RUPESTRIS



[illegible]

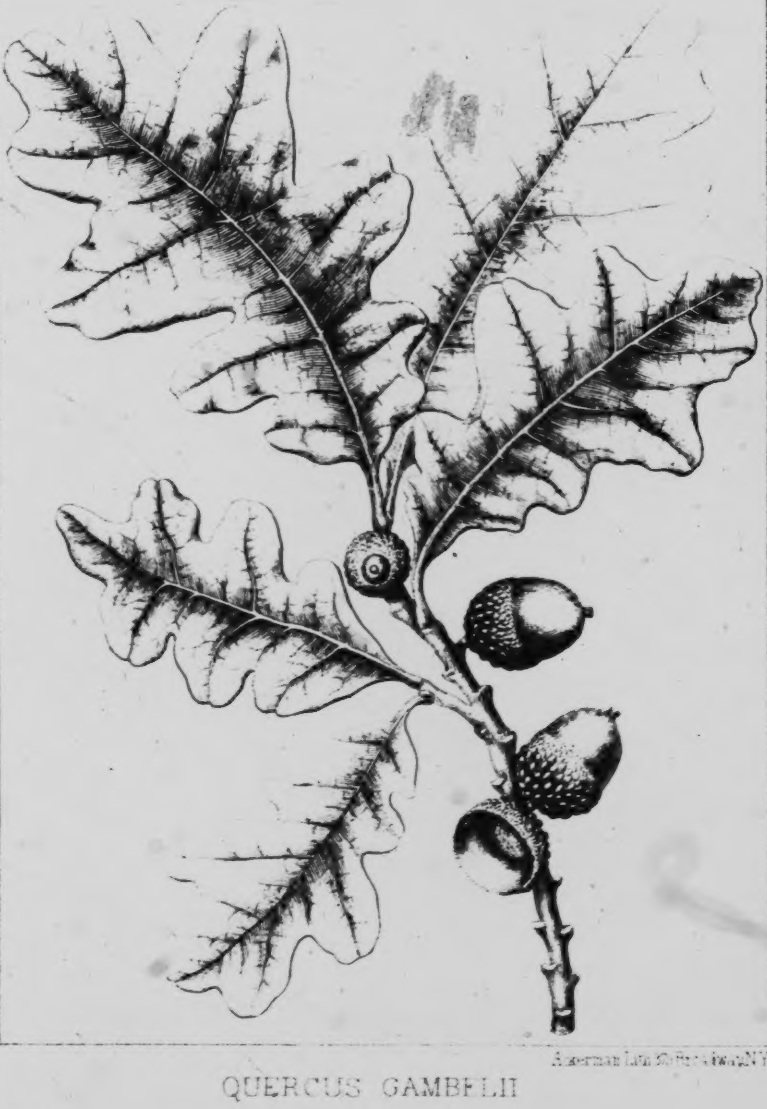
JUGLANS RUPESTRIS

Pl. XVII.



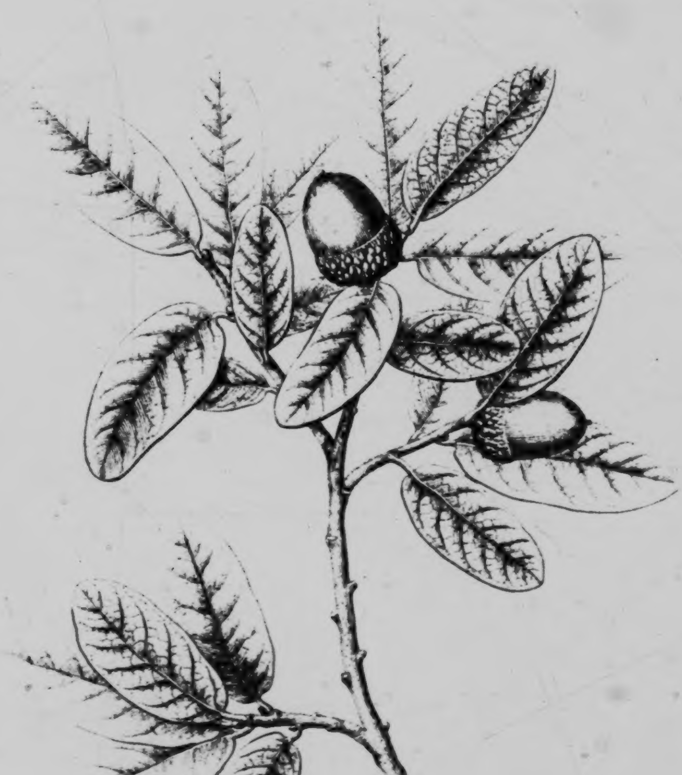
QUERCUS OXYADENIA.

Fixing box: figure spans y from ~370 to ~1230? No.



Ackerman Lith. 379 Broadway N.Y.

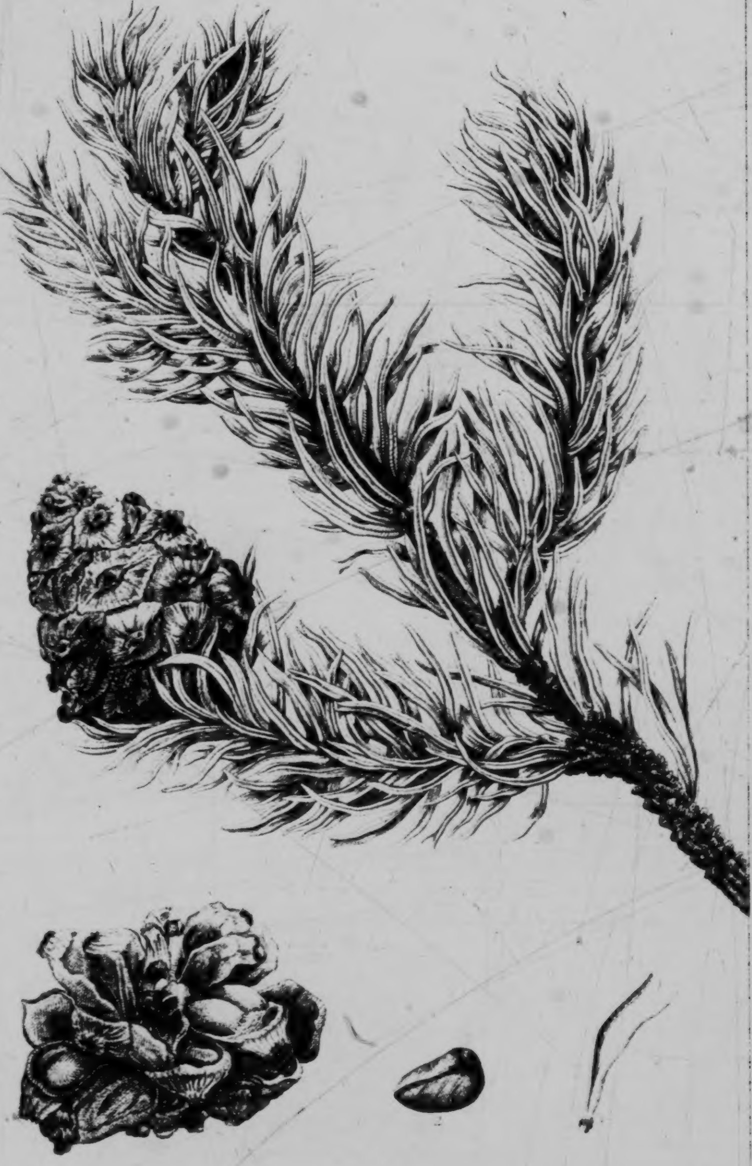
QUERCUS GAMBELII



[illegible]

[illegible]

Pl. XX



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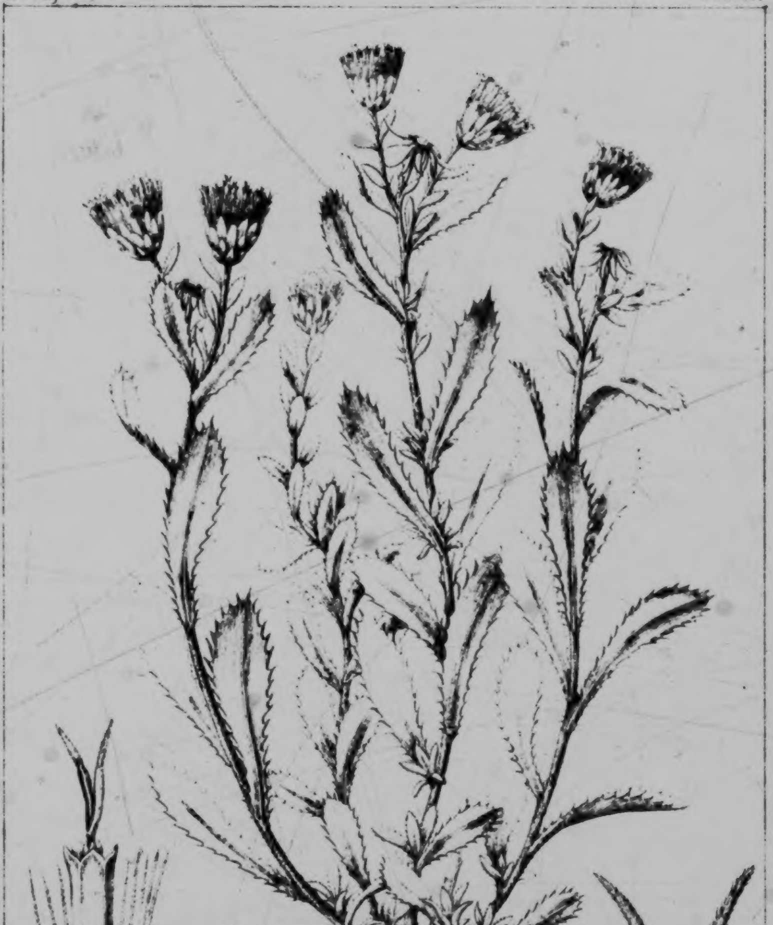
PINUS EDULIS.



Ackerman Lith 379 Broadway NY

APLOPAPPUS NUTTALLII